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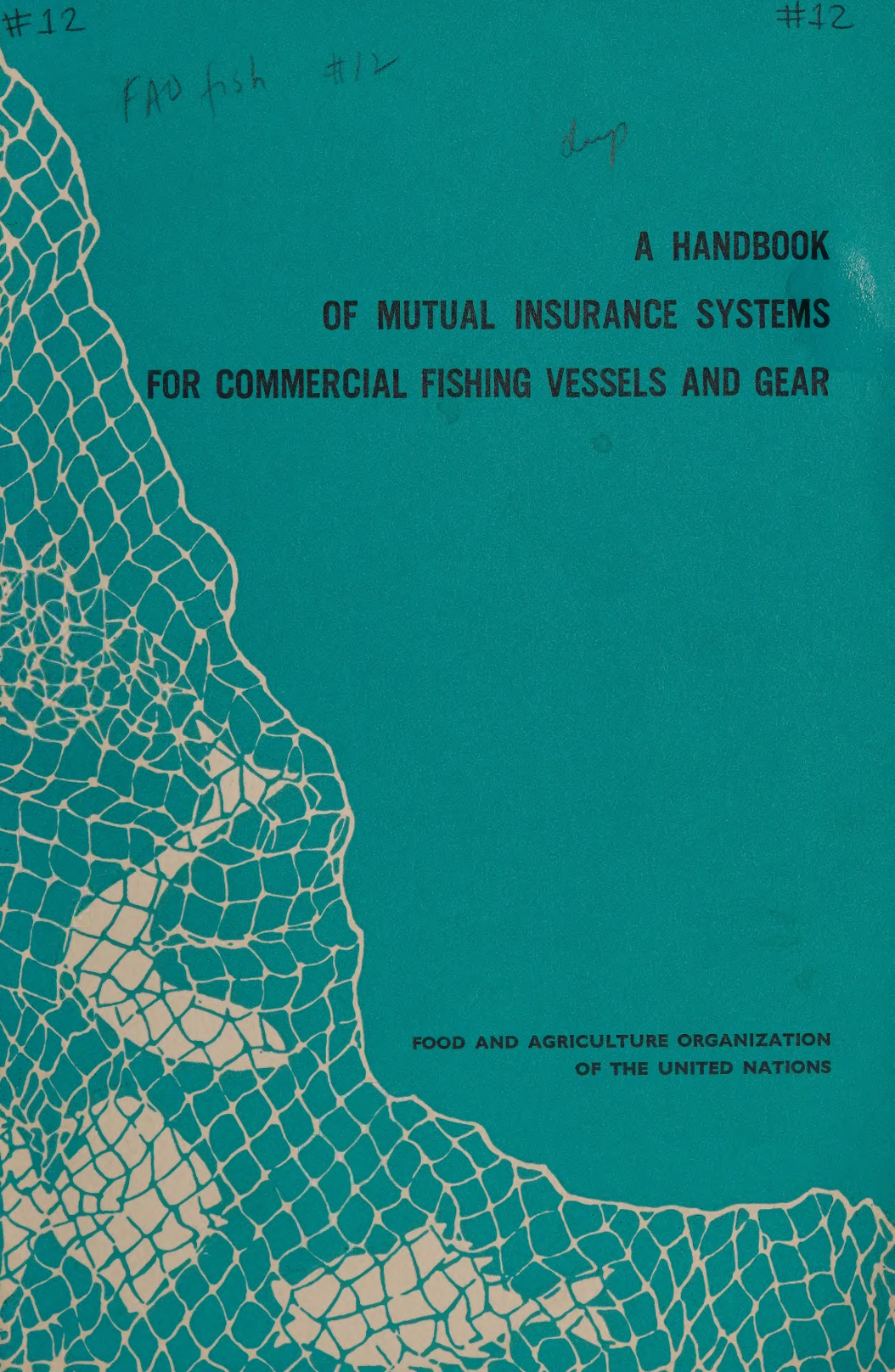
A HANDBOOK OF MUTUAL INSURANCE SYSTEMS FOR COMMERCIAL FISHING VESSELS AND GEAR



FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS

A HANDBOOK OF MUTUAL INSURANCE SYSTEMS FOR COMMERCIAL FISHING VESSELS AND GEAR

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Edited by

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CONTENTS

INTRODUCTION 1

1. MUTUAL INSURANCE SOCIETIES FOR COMMERCIAL FISHING VESSELS IN NORWAY, *by Henrik Ameln* 4

Evolution and growth 4
Insured risks and their coverage 9
Risks and premium rates 12
Actuarial aspects of the system 15
Organizational controls and administrative supervision 19
Present difficulties and the future 22

Appendixes: 1. Statutes of the Reinsurance Institute for Fishing Vessels. – 2. Statutes of the Reinsurance Institute for Fishing Gear 25

2. THE JAPANESE INSURANCE CO-OPERATIVE SYSTEM FOR COMMERCIAL FISHING VESSELS, *by Takeshi Nakamura* 30

Establishment and growth of the system 30
Insurance coverage 32
Organizational structure 37
Determination of premiums 42
Controls and safeguards for settlement of claims 49
Past, present and future 52

Appendix tables 58

3. THE TWO NATIONAL SYSTEMS AND SOME GUIDELINES FOR INSURANCE CO-OPERATIVES, *by Chris A. Theodore* 65

Comparison between the Norwegian and Japanese systems 66
An actuarial model and the two national systems 71
Some guidelines for the formation of insurance co-operatives 76
Actuarial aspects of sound management 81

4. A SAMPLE OF BY-LAWS FOR INSURANCE CO-OPERATIVES 89

Appendixes: 1. Sample of a hull insurance policy. – 2. Sample of a renewal certificate 115

INTRODUCTION

The development of commercial fisheries normally involves a transition from small primitive craft to larger mechanized vessels which are able to use more efficient types of gear and techniques. Being less dependent on favorable weather and sea conditions, such vessels make it possible to extend fishing operations both in time and distance, so that fishing becomes a more specialized occupation, requiring full-time participation by fishermen.

At this stage of development, the fisherman becomes increasingly aware of the need to protect his vessel from loss or damage, not only because the vessel represents a considerably increased capital value, much more difficult to replace, but also because it has become the main and, in many cases the sole, source upon which he and his family depend for their livelihood.

Because of the special risks and hazards to which a fishing vessel is exposed, it is unfortunately not an object which can be insured easily or cheaply. Private insurance companies in many countries are reluctant to insure fishing vessels, except to a limited degree and at a cost in premiums which are a serious handicap and burden to fishermen. Moreover, the greater cost of the larger vessels means that fishermen normally have to obtain financial assistance to meet the initial capital cost involved. Such credit, whether from public or private sources, is usually only available against the security of the vessel which must, therefore, be insured against loss or damage.

To meet the need for cheaper insurance, fishermen in a number of countries joined together and established mutual and co-operative societies for the insurance of their fishing vessels and gear. Many governments, recognizing the great significance of satisfactory insurance arrangements both in respect of individual fishermen and as a powerful stimulus in mobilizing available capital for fishery development, have participated actively in the promotion and establishment of mutual insurance schemes for fishing ves-

sels and gear, often with initial financial support, particularly in setting up suitable reinsurance facilities.

The speed with which many of today's advanced fishing nations have effected the transition from small to larger and more efficient fishing vessels, especially in certain coastal and medium-range fisheries, would have been considerably slower had it not been for the establishment and rapid growth of mutual insurance schemes combined with extended credit facilities, both from private and governmental sources. It is therefore not surprising that many developing countries, engaged at present in effecting such transition in their own fisheries, are showing an increasing interest in the establishment of mutual insurance schemes. This interest has been reflected in the growing number of requests to the Food and Agriculture Organization of the United Nations (FAO) for information on how such schemes are organized and operated.

This handbook is intended to provide such information and to give some guidelines which it is hoped will be useful in the establishment and operation of mutual insurance systems. It is not intended to suggest that a particular scheme which has been operated successfully in one country will necessarily provide a ready-made model for another; this will depend on the special characteristics of the fishery or fisheries which the scheme is to embrace.

However, it is considered of value to describe and examine certain aspects of the establishment, organization and operation of the mutual insurance schemes at present in effect in Norway and Japan. Both these countries are advanced fishery nations. The schemes which they have adopted present, nevertheless, many essential differences, not least as regards the role played by the government in respect of financial assistance, administration and supervision.

Chapters 1 and 2 of the handbook contain the country studies on Norway and Japan. In Chapter 3 a comparative analysis of the main features of the Japanese and Norwegian systems leads to the formulation of some guidelines for the successful organization and sound management of insurance co-operatives. Chapter 4 contains a sample of by-laws for insurance co-operatives.

The preparation of the handbook was carried out in two stages. The country studies were prepared by Mr. Takeshi Nakamura (Japan) and Mr. Henrik Ameln (Norway). These studies, together with additional background information and data which FAO had collected on mutual and co-operative insurance organizations in a number of other countries were

made available to Dr. Chris A. Theodore, Professor of Business Administration, Graduate Division, College of Business Administration, Boston University, Massachusetts, United States, who wrote Chapter 3 and, in addition, edited the other sections in consultation with the country consultants and FAO staff members.

In this work, Dr. Theodore was able to draw on his extensive knowledge of actuarial theory and practice, as well as his previous research into problems associated with insurance of commercial fishing vessels. Mr. Ameln, Barrister-at-Law (Supreme Court), Average Adjuster, and Chairman of the Boards of Directors of the Reinsurance Institutes for Fishing Vessels and Gear, has been closely associated with Norwegian mutual insurance activities for more than 30 years. Mr. Nakamura was Chief of the Fishing Boat Insurance Section, Fisheries Agency, Ministry of Agriculture and Forestry, Japan, at the time he prepared his study, and is now Chief of the Fisheries Statistics Section, Statistics and Surveys Division of the same ministry. FAO wishes to express its gratitude to the authors for their assistance in carrying out this project.

In view of the complexity of the subject and shortage of basic data, the present handbook is necessarily limited in scope and depth of treatment. It should be considered as an initial attempt to meet an urgent need, and FAO hopes that it will also serve to stimulate further research. It aims primarily at transferring, in a practical manner, some of the knowledge and experience of countries where mutual insurance systems have been successfully established and operated for many years, to countries – especially those in the process of developing their fisheries – where such systems are little developed or not developed at all.

FAO hopes that the present study will prove to be of value to such countries when the need for insurance becomes evident with the progress of commercial fishery development.

1. MUTUAL INSURANCE SOCIETIES FOR COMMERCIAL FISHING VESSELS [1] IN NORWAY

by Henrik Ameln

The present system of mutual insurance societies is principally the result of individual initiative and a deep feeling of solidarity so prevalent among Norwegian fishermen. A full account of its beginnings, growth, and success may be of interest to many. Space limitations, however, permit us to trace only briefly certain aspects of the system. Firstly, we shall focus our attention on the evolution, growth, and success of the system. Secondly, we shall further discuss the success of the system in terms of insurance risks and their coverage. Thirdly, we shall attempt to explain how and why the system has managed to offer increased insurance protection at lower premium rates; we shall do that by discussing the formal and informal controls in the assessment of risks and the settlement of claims, the actuarial aspects of the system, and its organizational and administrative setup. Finally, we shall examine a few of the difficulties which the system encounters today.

Evolution and growth

Mutual insurance societies for commercial fishing vessels, hereafter called societies, for convenience, have their roots in the early nineteenth century co-operative movement of Norwegian marine insurance. In Norway, unlike other countries, the lead for protection against the hazards of the sea was not taken up by private underwriters, who operate for profit, but by insurance co-operatives, which distribute their earnings to their members. In fact, the first concern to offer marine insurance was the Mutual Insurance Society (Oxefjordens Gjensidige Assurance-forening) on the island of Borøy, founded in 1806. This first insurance co-operative

[1] The term "commercial fishing vessels" is used loosely; it includes households which are engaged in fishing as the sole or major source of livelihood.

did not survive the financial difficulties which Norwegian shipping encountered later. But soon it was followed by other insurance co-operatives. Some of these early co-operatives are still in existence, such as the Bergen Steamship Insurance Society, later named Bergen Maritime Insurance Society (Bergens Skipsassuranceforening). It is not surprising, therefore, that in the history of marine insurance the period from 1837 to the close of the nineteenth century has been called the era of mutual insurance societies. [2]

The early societies covered cargo ships only, which were not engaged in fishing. But the soundness of the principles involved was well understood and the consequent financial benefits were clearly seen. The experience gained emphasized the fact that the success of a society depends to a large extent on the degree of mutual control which the society's members are capable of exerting through personal contacts. Thus, it was generally agreed that societies should be as local as possible. [3] Furthermore, conditions for the establishment and expansion of insurance societies for fishing vessels were more favorable than for other shipping. Geography, great distances, sparse population, poor communications, the communal character of fishing operations, the special hazards of fishing, and the relatively greater financial inability to pay for protection forced local fishermen to rely on mutual help.

But these early societies were independent; hence, they were unable to spread their risks among themselves through reinsurance. Moreover, the insurance protection they offered was confined to hull only and limited to kr 12,000. [4] This insurance amount was quite insufficient for owners of large vessels. They had either to shoulder their own risk beyond that maximum insurance amount or to reinsure through their society with private insurers at premium rates higher than the rates of their society. For example, consider a vessel valued at kr 60,000. The society would cover the first kr 12,000 at 2.5 percent and, if the vessel owner wished full protection, reinsure kr 48,000 with a private insurer at 3.5 percent. Thus, the vessel owner had to pay kr 480 in extra premiums. Closely connected with limited liability was the weak financial position of these independent societies. As a general rule, they were unable to sustain total losses and private underwriters dominated the field of fishery insurance.

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[2] Jacob Worm-Muller, *History of Norwegian shipping*. Oslo, Norway, Norges Rederforbund and Cappelen, *ca.* 1925, p. 76.

[3] *Op. cit.*, p. 77.

[4] Official exchange rate: 1 U.S. dollar = kr 7.15.

In order to strengthen the financial position of the societies, the Norwegian legislature established in 1934 the Reinsurance Institute for Fishing Vessels " R " (see statutes in Appendix 1). A basic fund for " R " was created by the transfer of kr 1 million from the Insurance Fund for Fishing Vessels. Nine tenths of the interest earned on the basic fund was allocated for meeting the operating expenses of " R. " The remaining one tenth, together with other realizable surplus from the operations of " R, " were to be allocated to an equalization fund until this fund accumulated kr 750,000. The equalization fund was to be used to meet annual loss payments in excess of collected premiums. Beyond the above contribution to the basic fund, the government was not liable for the commitments of " R. " Later, we shall discuss the actuarial operations of the latter. Here, we shall trace the development of " R " since it stimulated the growth of societies and became the cornerstone of the system. Local societies sprang up throughout Norway. By the end of the 1930s their territories stretched from the Skagerrak coast in the southeast to Vardö in the northeast of the country.

Initially, " R " covered the limited liability of the societies in order to secure their existence. A society paid " R " 5 percent of the collected premium; in return, " R " was ready to cover the society's losses and expenses in excess of the collected premiums. Later, the maximum insurance amount for each risk which a society could assume was raised from kr 12,000 to kr 40,000. Furthermore, a society could reinsure with " R " an additional sum of kr 40,000 at premium rates which the society charged. Before the second world war, the maximum protection of kr 80,000 was sufficient for the majority of risks. After 1945, however, with the construction of a large number of vessels at costs higher than prewar levels, this maximum insurance amount became increasingly inadequate. At the same time, the premium rates of the societies were reduced far below the rates charged by private underwriters.

The need to increase the insurance amount while maintaining low rates led to the establishment in 1951 and 1953 of rings. We shall discuss the role of rings later. At this point, it is sufficient to explain that a ring is an actuarial device designed to spread the risk assumed by the societies which are members of it. The mutual insurance societies in Norway are grouped into three rings: the *Southern*, the *Möre*, and the *Principal*. The geographical area represented by the member societies of each ring is shown in Figure 1. The introduction of the rings facilitated further increases in the insurance amount. Today, there is no maximum limit which a society can assume on a risk.

FIGURE 1. – Geographical area of member societies of the three Rings in Norway.

In addition to larger insurance amounts, risk coverage was expanded. Besides hull insurance, the societies were able to offer insurance protection for fishing gear, equipment, catch, and the personal effects of the crew on board, for third-party liability, and for fishing gear in the sea. We shall discuss these types of insurance later. Here, it is important to mention that fishing gear at sea involves a high degree of risk. In recognition of the peculiarities of this risk, a Reinsurance Institute for Fishing Gear was established in 1952 along the lines of " R " (see statutes in Appendix 2). Societies which insure vessel owners for fishing gear in the sea reinsure with this institute.

At the same time, premium rates for hull insurance, although varied, fell below the rates charged by private underwriters. During the 1950s, private insurers were charging uniform premium rates throughout the country, which averaged about 3.5 percent. Nominal premium rates in the Southern Ring varied between 1.75 and 1.50 percent with actual rates (after deducting dividends and discounts), falling as low as 0.70 percent. Nominal rates were about 2.5 percent in the Principal Ring, and varied between 2 and 1.5 percent in the Möre Ring; but actual rates were 2.3 percent in the Principal Ring and as low as 1.1 percent in the Möre Ring. Actually, settlement terms on claims vary from one ring to another but, in general, these terms were at least as advantageous as the ones a vessel owner could obtain from private underwriters. Although premium rates for fishing gear on board are based on the rates charged by private underwriters, competition from the system has reduced these rates. This is true to a lesser extent with the premium rates for third-party insurance.

Thus, while the societies were the result of private initiative, the two reinsurance institutes, founded with the limited assistance of the government, joined these independent societies into a system which provided the actuarial base for the financial stability of this system. Except for the initial transfer of kr 1 million to each of the reinsurance institutes for establishing their basic funds, the Government of Norway gave no other financial assistance to the societies. Yet, we have seen that the societies of the system were able to increase the maximum insurance amount until no upper limit exists. While 6,490 vessels carried insurance with the system in 1942, this number increased to 7,853 vessels in 1963. During the same period, the increase in the insurance amount was more impressive, going up from about kr 77 million in 1942 to approximately kr 424 million in 1963, or more than fivefold. This growth was accompanied by a wider coverage of risks and premium rates lower than the rates charged by pri-

vate insurance companies. A further index of success is the fact that " R " and the Reinsurance Institute for Fishing Gear had accumulated considerable reserves by the end of 1963.

Insured risks and their coverage

With the above bird's-eye view of the evolutionary growth of the insurance co-operative movement for commercial fishing vessels in Norway, we are ready to study certain aspects of the system which are related to its success. In connection with this, we shall first discuss the risk protection which the system offers under the insurance policies for hull, for third-party liability, for fishing gear, catch and equipment on board the vessel, and for fishing gear in the sea.

Hull insurance protects the direct interest of the vessel owner. It includes protection against total loss or damage to the hull, engine, auxiliary machinery, electrical plant, fixtures and fittings, and accessories of the vessel. Initially, the owner was required to act as his own insurer for part of the risk. Thus, the insurance amount, i.e., the amount which the insured owner was entitled to receive in case of total loss, was set below the current market value of the vessel. This compulsory self-insurance is no longer practiced, and the major reason is that most vessels are mortgaged, with the creditors demanding full value coverage.

In the case of a partial loss, however, deductibles are provided which vary with the physical characteristics of the craft. Consider a ten-year-old wooden vessel grounded, with damage amounting to kr 30,000 to the hull and kr 6,000 salvage cost. The deductible amount is kr 10,000, or one third of the damage plus kr 50 minimum franchise deduction, so that the owner receives kr 25,950. No deductible is applied if the vessel's hull is made of steel. If the kr 30,000 sum represents damage to machinery, the deductible is one sixth of the damage for either wooden or steel vessels.

In addition to the above protection, a hull insurance policy provides for third-party liability, i.e., in the case of damage to another vessel caused by the vessel of the insured. But coverage is limited to the liability specified by the Norwegian maritime law. It covers only damages to the hull and catch of the other vessel, but not damage to the catch of the responsible vessel or personal injuries to the crew of either vessel. Furthermore, the extent of liability depends on the net tonnage (plus engine space if such space has been deducted from the gross tonnage in

calculating net tonnage) of the guilty vessel. It is restricted to kr 145 per net ton.

Experience showed that, in most cases, the extent of third-party liability provided by the maritime law compared to the magnitude of the inflicted damage was inadequate. For example, consider a 30-ton fishing vessel causing kr 50,000 damage to another vessel. The liability of the owner of the guilty vessel was limited to kr 4,350 (kr 145 × 30). Therefore, by an amendment to the Norwegian Fisheries Act, third-party liability was extended to the full value of the vessel, equipment and catch. This excess liability is covered with a new *third-party liability insurance policy*. In the above case, if the owner of the responsible vessel carried such insurance, the society would have had to pay the owner of the damaged vessel kr 45,650 on behalf of the insured, less a small deductible for self-insurance.

In spite of this extension in coverage, third-party liability did not cover personal injury. In 1957, the Maritime Convention in Brussels passed a resolution which increased third-party liability from kr 145 to kr 480 per net ton for damage to property and kr 1,000 per net ton for personal injury. In accordance with this resolution, a new minimum third-party liability has been introduced in Norway since 1 January 1965: kr 72,000 for damage to property and kr 300,000 for personal injury. The previous extended liability introduced by an amendment of the Norwegian Fisheries Act is no longer in effect. In the light of this new development, some thought is being given to excluding the limited third-party liability under hull insurance and introducing a compulsory third-party liability to cover the minimum coverage specified by the new regulations.

Under a *separate insurance policy*, a vessel owner can purchase protection *for the fishing gear, catch and equipment on board the vessel.* Coverage is quite extensive since it includes indemnity to the insured for total loss. Protection against partial loss, however, is limited to specified cause. Furthermore, under this policy, protection is afforded for the loss of personal effects of the crew for which, according to the Norwegian Seamen's Act, the vessel owner is liable.

Finally, important protection is offered under the *insurance for fishing gear in the sea.* As far as the author was able to ascertain, protection against this type of risk is available in Norway only. During the 1940s coverage was restricted to the winter herring fishing period from January through March in western Norway. It covered total loss or damage to gill nets in the sea. Subsequently, coverage included purse seine nets in the sea and other fisheries in addition to the winter herring fishery.

The underwriter's liability for this type of insurance is limited only to cases where the cause of loss is the weight of fish or severe weather. The insured is indemnified for the total loss of a string of gill nets or for part of the string if the cable breaks or must be cut to avoid more serious damage. He is also indemnified for total loss of purse seines or for condemned nylon seines where repair costs represent at least 75 percent of the value of the repaired seines, or the insurance sum, whichever is higher, and also for condemned nylon reinforced cotton seines when the repair costs of the nylon portion represent at least 50 percent of the value of the repaired seines, or the insurance sum, whichever is higher. As mentioned above, the insured is not entitled to any protection for loss due to causes other than weight of fish or weather. For example, he is not protected against losses caused by gear fouling on the bottom, loss of buoys, single nets, or for damage due to the gear being used as a shore seine, drifting anchor, and the like. Furthermore, the policy provides for a deductible representing 20 percent of the total insurance.

There is an important reason why coverage of the fishing gear in the sea is so restricted. Both seines and nets are exposed to considerable wear and tear in the normal course of a fishing season; they require constant repair; yet they depreciate quickly, the normal life of fishing gear being between three to five years. Thus, the part of the loss which is not insurable because it is not the result of hazards associated with normal fishing operations, cannot be easily distinguished from the loss which is due to hazards representing an insurable risk. Both the restriction of causes and deductibles are devices which attempt to eliminate the noninsurable part of the risk.

In this connection, the following case may be of interest. Since trawling is becoming increasingly important, societies, at the request of their member vessel owners, agreed to try coverage of trawls during fishing. Premium rates were set at 10 percent. Coverage included total or partial loss of a trawl with a 25 percent deductible in the case of total loss. This was not successful. Experience showed that, in order to balance the books, premium rates had to be doubled and the deductible increased. Hence, coverage of trawls was abandoned. The experiment demonstrated that loss of a trawl is a noninsurable risk; it must be considered as part of the ordinary cost of fishing.

It is interesting to note the broad risk protection offered by the system, but it is equally interesting to realize that this protection is offered with a safeguard. In most cases, there is a substantial deductible which performs an important function. It makes the insured more aware of his responsi-

bility by placing part of the financial burden on his shoulders. Moreover, this financial burden is likely to reduce or eliminate the noninsurable elements from the risk which the system assumes.

Risks and premium rates

A better understanding of the factors which have contributed to the success of the system can be reached by surveying briefly the policies that societies follow in assessing risks, fixing premium rates and settling claims. Formal controls on these matters were adopted by the societies from the provisions of the General Statutes of Norwegian Marine Insurance. But some of the most important informal controls and safeguards are related to the local character of the societies.

Initially, the by-laws of all societies required that, before acceptance, a vessel must be subjected to a real assessment. The surveyor(s) of the society inspected the vessel personally in order to ascertain its seaworthiness. Any defects or conditions which did not conform to the high standards of maintenance established by tradition and custom had to be remedied before the vessel was accepted. On the basis of this careful survey, the fair market value of the risk was determined. The vessel was surveyed and evaluated again at least once every second year as well as immediately after major repairs, or as frequently as the board of the society deemed it necessary. Observance of established standards was reinforced by two important provisions. Unlike private underwriters, the cost of all surveys is borne by the society. Furthermore, if no survey takes place after major repairs and the vessel is damaged again, the board has the authority to reduce by as much as 25 percent the amount of legitimate claims.

Unfortunately, not all of the above provisions are followed today. Large societies do not require real assessment of the vessel before acceptance. They have adopted the procedure which is practiced by the merchant marine. They rely on the insurance amount which the vessel owner specifies and on an expert "opinion" rather than demanding a complete survey and evaluation. Small societies, however, still conduct a real assessment before accepting a risk.

Special safeguards are provided for surveying and evaluating damages. Survey and assessment of claims for damages are carried out by the official surveyors of the underwriting society. However, the two parties involved, i.e., the insured and the underwriting society, may agree to a private survey.

Then, each party must appoint a surveyor as soon as possible. Also, the rules specify how surveying should be carried out under different circumstances, such as when the two surveyors disagree. The surveyors must express their opinion about the cause or causes of the damage, estimate repair costs, and indicate how the damage should be repaired. Both parties, if they so desire, may invite tenders for repairs. If the vessel is repaired without a survey held in accordance with the regulations, the society may not indemnify the insured for an otherwise legitimate claim. This provision, however, does not apply if the insured proves that there was no opportunity for a survey before the damage had been repaired.

We have already mentioned that premium rates of the system varied from one ring to another. During the 1950s the Southern Ring experienced the lowest actual premium rates and the Principal Ring the highest, with the rates of the Möre Ring falling in between. These variations may be attributed to a number of factors which, for convenience, may be classified into two categories: (*i*) the physical factors related to the composition of the fishing fleet and the operational conditions of fishing; and (*ii*) the terms related to premium rates and the settlement of claims.

From the physical standpoint, insurance conditions are most favorable among vessels covered by societies which belong to the Southern Ring. The vessels are usually small, valued at kr 50,000, with the largest valued at about kr 150,000. They are less exposed to the rough seas than vessels farther north. On the other hand, societies belonging to the Möre Ring insure larger vessels engaged in deep-sea fishing. The insured vessels are worked extremely hard, often in distant waters, and are always exposed to the hazards of the open sea. Similar unfavorable physical conditions exist in the territory of the Principal Ring: harbors and fishing grounds are exposed to the open ocean; the quality of the insured vessels is less uniform than elsewhere; and societies cover large areas, which make inspection and control difficult.

There are considerable variations in the rules governing premium rates and the settlement of claims. In the societies of the Southern Ring these rules are more or less uniform. The same premium rate is charged for each vessel irrespective of size and material of hull. This policy on rates penalizes the better and larger vessels, which must pay a larger premium than smaller and older ones. But this is offset somewhat by deductibles for partial losses imposed on wooden and aged vessels and not on new and steel vessels, as exemplified earlier. Among the societies of the Möre Ring a uniform premium rate is charged. If the prevailing rate of the private underwriters

is lower than the uniform rate, the premium rate is reduced correspondingly. In addition, no deductibles are provided for age. In the Principal Ring the large societies diversify their risks by charging varying premium rates, but in small societies the rates are uniform. Although settlement terms vary somewhat, those quoted by the large societies correspond to the terms set by private underwriters.

There are a number of favorable insurance conditions which may explain the unusually low premium rates charged by the societies of the system. Such conditions are the real assessment of risks by small societies, relatively protected waters in the area of the Southern Ring, the customary high maintenance standards, and the deductibles for settling claims. On the other hand, there are a number of factors, such as lack of real assessment by large societies, insufficient risk diversification because of uniform premium rates, favorable settlement rules in spite of deductibles, and the unusual hazards of the rough open seas which may offset the above favorable insurance conditions. Yet most societies had been able to underwrite vessels at premium rates lower than the rates charged by private underwriters. Moreover, the societies of the Southern and Möre Rings and, until recently, the societies of the Principal Ring, were able to accumulate substantial reserves.

This accomplishment, however, may be attributed to a considerable extent to informal controls established by the strong co-operative spirit and sense of group responsibility which prevails among Norwegian fishermen. Societies are founded on a voluntary basis through individual initiative and mutual consent. In many cases, especially in the societies of the Southern Ring, the skipper himself is the owner of the vessel; and, as we have already pointed out, absentee ownership of fishing vessels is practically nonexistent in Norway. This close identification of vessel ownership with fishing and the extraordinary skill of Norwegian fishermen, especially among the societies of the Möre Ring, are important assets for the practice of sound insurance principles. They are largely responsible for the high maintenance and operational standards of the fishing fleets, the prudent use of insured property, and the reduction of unjustifiable claims. Even today, for instance, in many small societies, informal controls play an important role in the assessment of damages and supervision of repair work. The society's board consists of expert fishermen who often go as a group to survey the damage and see that only average damage is included; and repairs are made by local yards. In the light of so much local "expertising," the insured owner thinks twice before making unreasonable demands.

Thus, it may be safely stated that no other single factor has contributed more to the success of the co-operative insurance movement in Norway than the human element.

Actuarial aspects of the system

To no lesser extent, success can be attributed to the establishment of the reinsurance institutes and the introduction of the actuarial devices called rings. In view of this, a review will be made of some important actuarial aspects of the system. We shall do this by discussing the flow of funds, i.e., collected premiums and paid-out expenses and losses, from the viewpoint of the insured vessel owners, the societies, and the reinsurance institutes and rings. We shall confine ourselves to the operations of the Reinsurance Institute for Vessels " R " since, from the actuarial standpoint, the operations of the Reinsurance Institute for Fishing Gear are basically the same.

Ideally, insured vessel owners could be charged a premium at the end of a year in proportion to their purchased insurance amount and the paid-out losses and expenses which their society experienced during that year. For example, if the insurance amount which the society assumed was kr 1 million and all commitments amounted to kr 15,000, the premium rate would be 1.5 percent. Hence, a vessel owner carrying a kr 100,000 insurance on his vessel would have been charged an experiential premium of kr 1,500. Such an arrangement would have been consistent with the basic philosophy of a co-operative system.

But this subsequent determination of premium rates is considered impractical. Instead, the insured pays in advance a nominal premium which is based on a premium rate determined by the past experience of the society. This rate is sufficient to cover expected losses, expenses, and to provide a surplus for the accumulation of the required reserves. But the actual premium which the insured eventually pays depends on the actuarial experience of the society. If the society, after payment of losses and expenses, realizes a surplus in excess of the required reserves, the members of the society may decide to share this surplus in proportion to the nominal premium each member paid at the beginning of the year. In addition to this bonus, a given number of members with the best record during the last three to five years receive a 10 percent discount of the nominal premium paid at the beginning of the year. In fact, discounts as rewards for good insurance

records are given even when no surplus is realized during the year. In such case discounts are paid from the accumulated reserves of the society. These bonuses and discounts may be substantial. We have already seen that during the 1950s the actual premium rates charged to insured vessel owners were below nominal rates, especially among the societies of the Southern and Möre Rings.

On the other hand, if during a given year all payments of a society exceed the collected premiums, the insured vessel owners are required to pay a supplementary premium. According to the general statutes of Norwegian marine insurance, largely adopted by the societies, such a supplementary premium should in no case exceed 200 percent of the nominal premium which the insured paid in advance. In practice, however, cases requiring payment of supplementary premiums do not occur among the societies of the Norwegian mutual insurance system. In the first place, most societies, especially of the Southern and Möre Rings, have built up considerable reserves in excess of that required. These surpluses are used to meet commitments during adverse years which otherwise may have required payment of supplementary premiums. In the second place, societies may protect their insured vessel owners against payment of supplementary premiums with a stop loss insurance contract with " R, " as explained in the following pages.

So far, we have seen that the *actual* premiums which the insured vessel owners pay each year are determined by whether the net flow of funds in their society is above or below the required reserves. According to the existing statutory regulations, this required reserve fund should represent 10 percent of the insurance amount assumed by a society at the end of each year. The question then arises as to how a society manages to balance the inflow of collected premiums against the outflow of loss payments. Figure 2 shows the flow of premiums and claims through the Norwegian system of mutual insurance societies.

Over the years, the number of societies in Norway has been steadily reduced through mergers. Today, there are only 45 mutual insurance societies. In each insurance policy the society and " R " appear as coinsurers [5] of the insurance amount purchased by the vessel owner member of the society. For each insured risk the society collects the nominal premium for the stipulated insurance amount; it underwrites a portion of it and coinsures

[5] A coinsurer, like an insurer, is directly liable to the insured for the share of the interest he has underwritten.

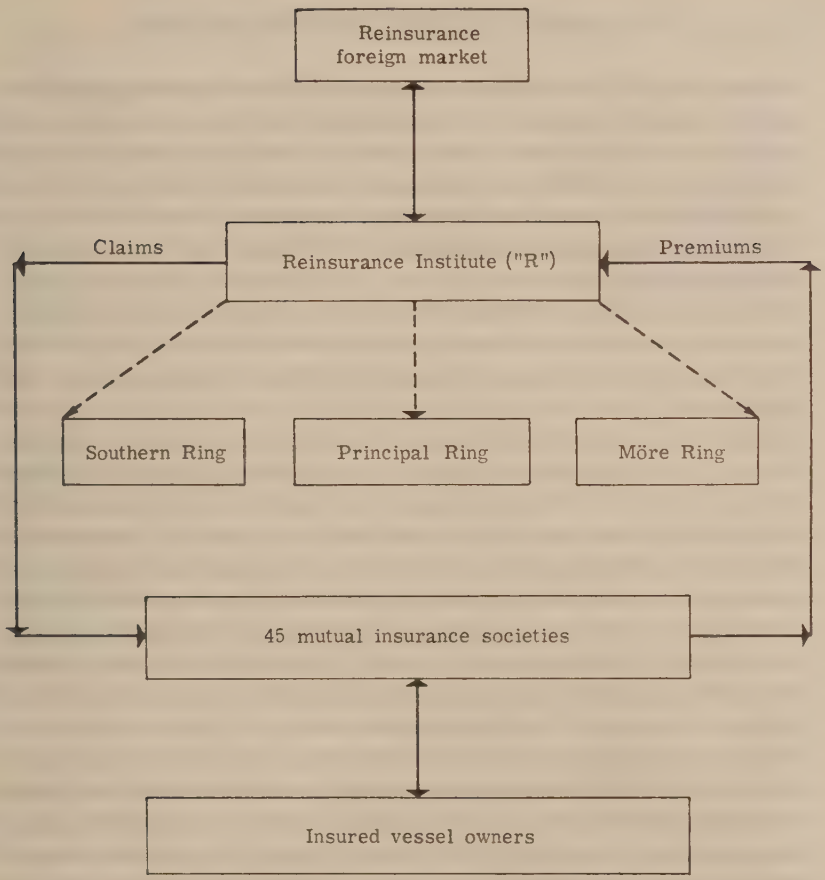

FIGURE 2. – Flow of funds in the Norwegian system of mutual insurance societies for commercial fishing vessels.

the rest with " R " by paying a premium which usually is in proportion to the coinsured amount. For example, if the insurance amount is kr 500,000 and the nominal premium rate is 2 percent, the society collects a premium of kr 10,000 from the insured vessel owner; it may underwrite kr 40,000 and coinsure kr 460,000 of the insurance amount with " R. " For the coinsured amount the society pays " R " kr 9,200. The maximum amount of insurance which societies underwrite for each risk varies between the societies of different rings. The societies of the Southern Ring underwrite between kr 25,000 and kr 40,000, while this amount is kr 40,000 for societies of the Principal Ring and kr 100,000 for societies of the Möre Ring.

In order to protect the insured vessel owners against payment of supplementary premiums, practically all societies negotiate stop loss insurance contracts with " R. " A society pays " R " 5 percent of the premiums it retains for the underwritten insurance sum. In return, " R " covers loss payments and expenses of the society which may exceed the retained premiums for that year. For example, if the retained premiums during a year amount to kr 30,000, the society pays " R " 5 percent or kr 1,500 for stop loss insurance. If loss payments at the end of the year amount to kr 40,000, " R " pays an indemnity to the society of kr 10,000, representing the loss payments in excess of the retained premiums.

Initially, a society was able to arrange only for a stop loss insurance contract with " R. " As mentioned earlier, insurance amounts in excess of those underwritten by each society were reinsured [6] with private insurance companies. Introduction of the rings provided the channels through which the societies were able to reinsure large shares of their excess insurance amounts among themselves. This is accomplished through " R, " which acts as an intermediary between the societies and their ring. Consider the earlier example where " R " coinsured kr 460,000; " R " may reinsure as much as kr 260,000 of the amount with the societies of the ring to which the underwriting society belongs and the remaining kr 200,000 with private insurers in the foreign market at the same initial nominal premium rate.

It can be seen that a society underwrites risks as insurer and reinsurer. Firstly, as an insurer, it underwrites a share of the interest in each risk of its own. Secondly, as a reinsurer, a society underwrites a share of the interest in the risks underwritten by the other societies of the ring. The

[6] Unlike coinsurance, a reinsurer is not directly liable to the insured vessel owner for the share of the reinsured interest in the risk.

maximum insurance amount per risk which can be underwritten in the system varies between the rings, e.g., kr 200,000 in the Southern Ring and kr 300,000 in the Principal Ring. Insurance amounts in excess of these maximums are reinsured in the foreign market. Also, the method of distributing the reinsurance amount among the societies differs between rings. In the Southern Ring, " R " acts as a clearinghouse only by distributing the reinsurable amount among the member societies on the basis of a predetermined quota system. In the Möre and Principal Rings, however, " R " acts as an underwriter by retaining the coinsured amount which, under the quota system, should have been reinsured with the underwriting society, and then reinsures the rest with the other societies of the ring.

In order to protect the member societies against excess loss from reinsuring, the ring negotiates a stop loss insurance contract with " R. " The ring pays 10 percent of the reinsurance premium it collects and " R " is prepared to cover losses in excess of that premium. If the reinsurance premium for amounts placed with a ring is kr 200,000, the ring pays " R " a premium of kr 20,000 for a stop loss insurance contract. Assuming that losses during the year amounted to kr 250,000, the ring pays kr 200,000 and " R " pays the excess loss of kr 50,000. A society shares in the payment of the kr 20,000 premium proportionately. If one fourth of the kr 200,000 originates with the society, its premium share is kr 4,000.

On the other hand, if the losses of a ring are less than the collected reinsurance premium, the surplus is distributed among the member societies of the ring. The method of distribution differs between rings. In the Southern Ring, the surplus is distributed in proportion to the insurance and reinsurance premiums of each society, while in the Möre and Principal Rings it is in proportion to the insurance premium of each society only.

Thus, it can be seen that the reinsurance institutes and the actuarial devices of rings unified the independent societies into a system; more important, they strengthened the financial position and stabilized the actuarial operations of member societies by supplying the required channels for a much wider geographical distribution of the assumed risks.

Organizational controls and administrative supervision

The success of the mutual insurance system in Norway may be attributed to some extent to the controls and supervision of the government. In this connection, we shall focus our attention on certain organizational and administrative aspects of the system. such as membership with the societies,

their establishment and dissolution, and the extent of supervision which the Government of Norway has over the activities of the system.

One important aspect of membership in a society is the fact that the right to own a fishing vessel is reserved for persons who are engaged in fishing as a major source of livelihood. Permits to register a fishing vessel are granted to persons or companies controlled by such persons who have been engaged in fishing for at least three years and who will continue doing so in the future as their major occupational activity, or who will continue being engaged in activities connected with the fishing trade. This requirement seems to be an important insurance safeguard; it reserves fishing to persons who regard it as a lifetime commitment and who are less prone to accident because of unfamiliarity with the profession. At the same time, there is an important disadvantage associated with this provision, which will be discussed later. What interests us here is that only such persons or companies can be members of a society or form a society for the purpose of buying insurance protection at advantageous terms.

The rules for establishing and operating a society are specified in great detail by the government. Ten or more persons who own collectively at least 30 fishing vessels representing an insurance amount of no less than kr 250,000 can form a society at a foundation meeting. Each participant has one vote for each vessel owned, and he can represent other persons by a properly authorized proxy; but the total number of votes for each person present at the meeting cannot exceed three. All founders must become members of the society and approve its by-laws. On the basis of these by-laws a five-member board is elected. The minutes of the meeting are signed by all the founders and are submitted for approval to the Insurance Council, a supervisory body discussed below. Neither a society nor a private (joint-stock) insurance company can be established without the approval of the authorities.

The annual business of the society is decided at an annual general meeting. Five members of the society present at the meeting represent a quorum. The general meeting approves the annual report and the accounts of the society, decides on distribution of the realized surplus or deficit, elects the board members and their deputies, appoints auditor(s) and assessors, decides whether or not the elected board members will be paid and determines the amount of remuneration, and decides on other matters included in the agenda. All decisions and resolutions are carried by a majority vote unless otherwise specified. The chairman of the board presides over the general meeting and has a vote in case of a tie.

The business of the society is carried out by the five-member board and its five deputies. The chairman of the board is elected separately for one year and the other four board members for a period of two years; but, in order to maintain administrative continuity, two of them are replaced each year, the first time by drawing lots. Board meetings are held as frequently as the chairman deems necessary or when two other board members request such a meeting. The board, acting on behalf of the society, makes all decisions relative to its proper functioning. Among other matters, the board keeps detailed accounts of collected premiums, expenses, and the amounts paid for settled claims and estimates for the unsettled ones; prepares an annual balance sheet and profit and loss statement for the annual report; sends out notices for the annual general meeting; determines the premium rates and other conditions of insuring risks; sees that the funds of the society are administered properly and in accordance with the resolutions of the general meeting; hires a business manager and other employees and determines their salaries and the scope of their responsibility in carrying out the day-to-day business of the society.

The chairman's signature or the signature of two other board members acting jointly are binding on the society. Although responsibility lies with the board, success depends on the ability of the business manager and the assessors who evaluate the insurability of risks and the claims for partial losses, i.e., for particular average damage.

From the administrative standpoint, there are a number of supervisory controls. Existing legislation provides that the Crown may issue rules governing the establishment, operations and dissolution of societies. However, supervision of their activities is entrusted to the Insurance Council. The major task of the latter is to protect the interests of the insured vessel owners and see that societies provide the maximum protection at minimum premium rates. To this end, the Insurance Council sees that the rules for the establishment of new societies are observed, examines the annual financial reports which the societies must submit and, if necessary, investigates their financial records. If the Insurance Council finds that a society operates in violation of the established rules and against the best interests of the insured vessel owners, it may suspend the society's activities or even request the Crown to dissolve the offending society. The societies pay annual dues to cover the operating expenses of the Insurance Council.

On the other hand, the two reinsurance institutes are not under the supervisory authority of the Insurance Council but under the jurisdiction of the Ministry of Fisheries, although their funds are administered by the

Ministry of Finance. However, these administrative connections are supervisory and the reinsurance institutes have a large degree of freedom in determining the premium rates for reinsurance as well as other conditions related to the coverage of risks.

The government, as stated above, has set up a number of administrative controls, but these controls are supervisory rather than regulatory. Within the general administrative rules, both the societies and the reinsurance institutes enjoy freedom of action in negotiating the terms of the insurance protection they offer. Thus, they constitute an independent entity enjoying a minimum degree of governmental supervision commensurate with their financial independence.

Present difficulties and the future

Up to now, we have traced the evolution and growth of the mutual insurance movement for commercial fishing vessels in Norway and attempted to explain the reasons for the success of the system. In terms of current market value, about 50 percent of the fishing vessels at present in Norway carry insurance under the system. However, in view of the fact that the insurance terms, especially premium rates, are decidedly better than those of the private underwriters, why was the system unable to cover more than half of the insured fishing vessels in Norway?

Failure to capture a larger share of the insurance business may be partly attributed to the internal difficulties accompanying development of the system. Most of the first independent societies were small, numbering very few vessels; yet, through mutual control and thrift, they managed to meet the limited insurance needs of the local fishermen and build relatively comfortable reserves. From the administrative and actuarial standpoints, runing such a society was relatively easy, since coverage was limited to hull insurance only, the same premium rate was charged to all vessels irrespective of age, size, material of hull, and other important characteristics of the risk, each person knew everything about everybody's business, and it was an honor to be an unsalaried member of the board. Thus, operating costs as well as loss payments were kept to a minimum.

With the passage of time, however, new developments made the operations of small societies increasingly difficult. As we have already seen, insurance coverage expanded to areas beyond hull insurance, new complicated insurance terms and settlement rules were introduced, and members demanded

the same services which the competing private insurance companies were offering. Developments such as these were behind the merger of small societies. Today, some large societies insure up to several hundred vessels. With such a volume of business they are able to cope with the changing conditions by employing experienced managers. Thus, the everyday affairs of the large societies are increasingly carried out on a professional as well as an impersonal basis. This impersonal character of doing business does not seem to have adversely affected the insurability of the risks: but it definitely increased operational costs which, in some large societies of the Möre Ring, represent as much as 6 to 8 percent of collected premiums. Of course, professionalism in business reduced the competitive disadvantage with respect to service, but it also diminished the competitive advantage with regard to operational costs which the societies had over private underwriters.

Another development which seems to have inhibited faster growth of the system is related to the payment of premiums. The established procedure provided for advance payment of nominal premiums in two half-year installments; this applied to both the societies and the private underwriters. Recently, however, because of unfavorable economic conditions, it has become increasingly difficult for Norwegian fishermen to pay their insurance premiums in advance. Credit has been so extensive that prepayment of premiums has been the exception rather than the rule, and this credit on premiums created more financial difficulties for the societies with their limited financial resources than for private insurers.

At first, the suggestion was made to make premiums in arrears first lien on the insured property over ordinary mortgage. This suggestion, however, was turned down on the grounds that it might undermine the mortgage market and make it more difficult for vessel owners to obtain credit. The situation was improved when many creditors carrying a mortgage on fishing vessels guaranteed payment of the premium in proportion to the mortgaged value of the vessel. For instance, if the insurance amounted to kr 500,000 with a mortgage of kr 400,000, the mortgage holder guaranteed four fifths of the premium. Naturally, it was always possible for a vessel owner to find an insurer who might be willing to extend premium credit without such guarantee. This possibility was finally eliminated when, in 1958, the societies and the private insurers agreed not to accept a risk without prepayment or a guaranteed payment of premiums.

But the greatest single factor which retarded further growth of the system was the continuous and increasingly stiffer competition from private insurance companies. This competition appeared in two forms: credit or guar-

antee insurance, and successive reduction of premium rates. We shall discuss both in that order.

We have already pointed out that the exclusive right of the fishermen to vessel ownership has certain advantages. But this ownership monopoly leads to financial difficulties, for private capital is excluded from financing the construction of new vessels unless owned by fishing interests. Private insurance companies take advantage of this situation by guaranteeing the portion of the credit which banks would not have extended as a second mortgage on the vessel, on condition that they insure the vessel. Consider the construction of a new vessel which is expected to cost kr 1 million. The owners put up kr 150,000 of their own money; and the government, through the state-operated Fishermen's Bank, grants 60 percent credit, representing a first lien loan of kr 600,000. The owners are unable to borrow the remaining kr 250,000, since private banks refuse to extend credit on the vessel as a second mortgage without additional collateral. Such a collateral is given by private insurance companies in the form of credit or guarantee insurance. Under this arrangement, the private underwriter, on condition that the owners will insure the new vessel with him, guarantees, in case of loss, to indemnify the bank in the amount of kr 250,000. The private bank extends the credit as a second mortgage at a 6 percent interest rate, which is 1 percent higher than the rate charged by the Fishermen's Bank.

This practice became the rule rather than the exception. It permitted private insurers to compete with the system very effectively. It is true that the societies were able, through "R," to arrange credit insurance in the foreign market, but the volume was limited. In response to a rising concern over the undesirable effects that such practices may have in the insurance market, the government passed a law which prohibited insurers engaged in underwriting fishing vessels to give credit or guarantee insurance, but private insurers circumvented the measure by establishing their own independent credit insurance companies.

Credit or guarantee insurance enabled private insurance companies to underwrite most of the newly constructed large vessels. This development eventually resulted in a favorable selection of risks by the private insurers, which placed the societies in an increasingly disadvantageous actuarial position. However, such favorable selection of risks was also encouraged by the uniform premium rate policies of the societies. It enabled private underwriters to select vessels representing good risks and offer their owners insurance protection at premium rates below the uniform rates charged by the societies.

Private insurance companies based their premium rates on a combination of rates for total and partial loss, i.e., particular average damage. During the first half of the 1950s, the minimum premium rate which private underwriters charged was 3.5 percent. As the system of societies developed and rates could be reduced this minimum rate of private underwriters was successively lowered. Finally, in late 1962, private insurers stopped quoting minimum premium rates and charged whatever rates the traffic could bear. Societies had to follow suit. Today, premium rates have been reduced to such a low level that both private underwriters and the societies seem to just break even.

What does the future hold for the system? No one can tell. The crux of the matter is that the insured vessel owners have benefited by being able to buy insurance protection at phenomenally low premium rates which saves the fishing industry millions of kroner each year. Perhaps one may successfully argue that this has been the system's major achievement. Whether it will be capable of effectively coping with the keen competition of private underwriters may largely depend on the ability and willingness of the societies to revise their actuarial practices and on new legislation to curtail unsound insurance practices.

Appendix 1. – Statutes of the Reinsurance Institute for Fishing Vessels

1. The Reinsurance Institute for Fishing Vessels has been founded to promote the satisfactory insurance of fishing vessels, gear on board and crew effects.

In order to serve this objective, *the Institute will, in co-operation with* the mutual insurance societies for fishing vessels, *cover fishing vessels with the most suitable form of coinsurance and reinsurance.*

2. The basic fund of the Reinsurance Institute has been created by the transfer of kr 1 million from the Insurance Fund for Fishing Vessels.

The basic fund may only be touched when the other assets of the Reinsurance Institute have been exhausted. In that event, every effort shall be made to bring the basic fund back to its former level as soon as possible.

The state is not liable – in excess of those amounts transferred to the basic fund – for the commitments of the institute.

One tenth of the interest on the basic fund shall ordinarily be added to the fund.

The balance of the interest shall be applied to cover administration and inspection expenses. Part of this interest may also, subject to the approval of the Ministry of Fisheries, be employed for the promotion of the objective of the institute – subsidizing of fishing vessel insurance and providing the fleet with security against averages and total loss, if expedient – in co-operation with mutual insurance societies.

3. Unapplied interest on the basic fund and any other surplus shall be allocated to an equalization fund until this fund has reached the sum of kr 750,000, interest on this equalization fund to be added to the fund. This fund is to be utilized whenever annual operations result in a deficit which cannot be met by the collected premiums.

4. The basic fund and the equalization fund (2 and 3 above) shall be administered by the Ministry of Finance, which shall each year pay out nine tenths of the interest on the basic fund, issue a statement on the position of the basic fund and the equalization fund, and pay out any subsidies, in accordance with (2) above.

5. The board of the Reinsurance Institute shall consist of five members to be appointed by the Ministry of Fisheries for periods of three years at a time. The chairman of the board shall be an expert in the field of insurance. Deputies shall be appointed for the chairman and the members of the board.

Remuneration to be paid to the board shall be fixed by the Ministry of Fisheries.

6. The administration of the Reinsurance Institute shall be organized and led by the board under the supervision of the Ministry of Fisheries.

The insurance year shall coincide with the calendar year. The accounts shall cover the same term as the national budget. The accounts shall include the accounts for the insurance year which ended in the course of the term covered by the accounts. These accounts shall show the result of the various types of insurance, hull, gear and effects. Accounts should be completed and audited by 30 September of each year.

Audited accounts shall be submitted to the Ministry of Fisheries, and shall then be forwarded by this ministry to the audit office.

7. Further regulations governing the insurance activities of the Reinsurance Institute shall be drawn up by the board and approved by the Ministry of Fisheries.

The premium to be paid by affiliated mutual insurance societies should be fixed at a figure which will cover ordinary compensation commitments.

Appendix 2. – Statutes of the Reinsurance Institute for Fishing Gear

1. The Reinsurance Institute for Fishing Gear has been founded to promote the satisfactory insurance of gear used in the winter herring fishery, during use and in storage.

In order to serve this objective the institute will:

(*a*) accept coinsurance and reinsurance from local mutual societies for the insurance of gear used in the winter herring fishery;

(*b*) promote the movement of mutual insurance by acting as adviser and consultant to the societies.

2. The Reinsurance Institute for Fishing Gear and the Reinsurance Institute for Fishing Vessels in Bergen shall have common offices, and shall be under joint day-to-day management. The Reinsurance Institute for Fishing Gear shall have a separate account and the two institutes shall not be liable for each other's commitments.

3. The Reinsurance Institute for Fishing Gear has a basic fund of at least kr 1 million, of which kr 500,000 has been voted by the legislature and kr 500,000 is a subsidy from the Norwegian Herring Sales Organization (Noregs Sildesalslag).

The basic fund may only be touched when the other assets of the institute are exhausted.

In the event the fund drops below kr 500,000, the question of raising the fund to its original level shall be brought up for discussion with the Ministry of Fisheries.

The state is not liable in excess of money transferred to the basic fund for commitments of the institute.

4. The basic fund shall be administered by the Ministry of Finance, which shall each year pay out the interest on the fund and shall, from time to time, pay out from the fund those subsidies which may be necessary to ensure the operation of the institute.

Subject to the approval of the relevant ministry, part of the interest on the fund may be employed for the promotion of the objectives of the institute.

5. The Reinsurance Institute for Fishing Gear shall charge a fair and proportional remuneration – a premium – for its insurance activities.

Any operating surplus and any unapplied interest shall be added to the basic fund in the event that this fund falls below its original level. Once this level has been reached, the surplus shall be allocated to a reserve fund.

Should the premium income plus interest not cover operating costs, the deficit shall be covered by the reserve fund.

6. In order to participate in the insurance scheme organized by the Reinsurance Institute for Fishing Gear, mutual societies shall at all times have articles of association, insurance terms, and premium conditions which are approved by the Reinsurance Institute for Fishing Gear.

7. The Board of the Reinsurance Institute for Fishing Gear shall consist of three members, members and deputies to be appointed by the Ministry of Fisheries for a term of three years. One member and deputy is to be nominated by the Norwegian Herring Sales Organization, and one member and deputy by the director of fisheries.

The institute shall have the same chairman as the Reinsurance Institute for Fishing Vessels. This chairman shall be an expert in the field of insurance. Remuneration to be paid to the board shall be established by the Ministry of Fisheries.

8. At the end of each financial year the board shall submit audited accounts and an annual report to the Ministry of Fisheries. The accounts shall be drawn up in accordance with the general principles of insurance accounting.

The financial year shall be the same as that of the budget. Not less than three months after the end of the financial year, the accounts and annual report shall be sent to the Ministry of Fisheries, which will forward them to the audit office.

9. Further regulations governing the activities of the Reinsurance Institute for Fishing Gear shall be drawn up by the board and approved by the Ministry of Fisheries.

2. THE JAPANESE INSURANCE CO-OPERATIVE SYSTEM FOR COMMERCIAL FISHING VESSELS [1]

by Takeshi Nakamura

Today, the insurance associations for commercial fishing vessels in Japan represent a complex system of insurance co-operatives. This paper, therefore, does not claim to be more than a very brief account of a few aspects of this system. After tracing the rise and growth of insurance associations we shall discuss in general terms the following topics: extent of insurance coverage, organizational structure, determination of premiums and settlement of claims. In conclusion, we shall examine future prospects of the system in the light of past experience.

Establishment and growth of the system

The beginnings of the present insurance system in Japan date back to 1937. It was then that independent associations were established which offered insurance protection to commercial fishing vessels. It was hoped that these insurance associations would strengthen the financial position of the failing fishing industry at that time, especially the large number of fishing households and small fishing enterprises. Although the existing system of mutual relief was far from offering adequate protection against the unique hazards of the sea, [2] it was expected that the new law would encourage the expansion of mutual relief to isolated villages where insurance with private companies was not available. Also, it was anticipated that the newly formed insurance associations would eventually join together to establish a nationwide insurance co-operative system for commercial fishing vessels.

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[1] The term "commercial fishing vessels" is used to include the large number of fishing households so characteristic of the Japanese fishing industry. For, although they may not be considered commercial enterprises in the strict sense of the word, such households rely on fishing as the sole or the major source of livelihood.

[2] The mutual relief system is limited to members of fishing co-operatives. At present, it provides for limited protection, such as against loss of income due to falling prices of fish and loss of the fishing gear while in use and not on board the vessel.

But this initial effort was handicapped in several respects. Premium rates were as high as those charged by private insurance companies. The associations were managed by inexperienced personnel and with insufficient reserves. Since they operated as independent units serving a small geographical area, usually a prefecture, they could not obtain satisfactory diversification of their risks. Neither were they given the opportunity to spread their risks through reinsurance.

More important perhaps than the above impediments was the fact that participation of vessel owners in the insurance associations was voluntary. This provision was a strong factor in inhibiting wide participation because of the peculiar composition of the Japanese fishing industry. As can be seen from Table 1, in 1963 as much as 96 percent of the vessel population was operated by fishing households. But the same group represented only 39 percent of the value of fish landings. On the other hand, only 4 percent of the vessel population operated by small and medium-sized fishing enterprises represented another 43 percent of the total value of fish landings. Although large fishing corporations represented 18 percent of the value of fish landings, they operated less than 1 percent of the vessel population.

TABLE 1. – PERCENTAGE DISTRIBUTION OF VESSEL POPULATION AND VALUE OF FISH LANDINGS, BY SIZE OF FISHING ENTERPRISES, 1963

Fishing enterprises	Vessel population (1)	Value of fish landings (2)
	Percentage	
Households [1]	96	39
Small and medium [2]	4	43
Large [3]	0	18
Total	100	100
Number, in thousands	[4] 227	[5] 4 947 000

SOURCE: Fisheries Statistics Section, Ministry of Agriculture and Forestry, Government of Japan, 1963.

[1] Less than 10 gross tons engaged in coastal fishing or agriculture. – [2] Ownership of a vessel larger than 10 gross tons engaged in fishing off the shores of Japan. – [3] Less than 1 percent. Large enterprises with a capital investment of at least 100 million yen engaged mainly in pelagic fisheries of the high seas. – [4] Excludes independent fishermen who do not use fishing boats and are engaged in fishing for less than 30 days each year. – [5] 1 U.S. dollar equals 360 yen.

It is rather unlikely that the vessel composition of the fishing industry in the late 1930s was substantially different from that shown in Table 1. With the exception of the large and a few medium and small fishing enterprises, the majority of the vessel owners did not operate under sound principles of financial management. Living on a subsistence and self-supported system of a household economy and bound by tradition and a strong feeling of self-reliance, they were unable to understand, let alone appreciate the advantages associated with insurance protection and sound depreciation policies.

Tradition, coupled with lack of clear-cut financial incentives, made voluntary participation in this early insurance scheme ineffective. Thus, the first attempt to establish a nationwide system of insurance associations was largely unsuccessful.

Subsequent legislation, especially the law of 1952, included important revisions of earlier measures and introduced new ones which established a nationwide insurance co-operative system. Under certain conditions, which will be explained later, participation in the insurance associations became compulsory. As a strong incentive to participation, compulsory affiliation was rewarded with substantial premium subsidies. At the same time, insurance coverage was extended and a Special Reinsurance Account (SRA) was established for reinsurance coverage.

Under measures such as the above, and others which will be introduced as we discuss the present system, the number of vessels carrying one or more insurance policies with the associations increased from 54,375 in 1952 to 122,790 in 1964, representing 13.3 and 31.3 percent of all registered commercial fishing vessels, respectively. Perhaps membership with the system can be better demonstrated in terms of gross tons, as shown in Table 2. Since 1952, insured gross tonnage as a percentage of the tonnage of all registered commercial fishing vessels increased steadily for all categories of vessel. However, at present, only 10 percent of the tonnage of nonpowered vessels is insured. This percentage is far below that for powered vessels of all tonnage categories covered by the scheme. Furthermore, with the exception of vessels between 100 and less than 1,000 gross tons, the percentage of insured powered vessels increases with the size of the vessel.

Insurance coverage

The increase in the number and tonnage of insured vessels had been associated with the broadening of insurance coverage in terms of types of insured risks, amount of insurance protection, and low premiums.

TABLE 2. – TONNAGE OF INSURED VESSELS, AS PERCENTAGE OF TONNAGE OF ALL REGISTERED COMMERCIAL FISHING VESSELS, GENERAL LOSS INSURANCE, SELECTED TWO-YEAR AVERAGES [1]

Vessel category	1952/53	1956/57	1960/61	1964/65 [2]
	..... *Percentage*			
NONPOWERED	5.6	10.0	10.0	10.3
POWERED				
Less than 5 tons	31.8	39.3	53.2	54.7
5 to less than 20 tons . . .	31.7	49.3	64.5	76.4
20 " " " 50 " . . .	39.3	65.5	83.7	88.7
50 " " " 100 " . . .	69.3	88.7	91.1	92.3
100 " " " 1 000 " . . .	53.0	65.0	63.0	63.4

SOURCE: Appendix Table 1, p. 58.

[1] Computed by averaging percentages instead of tonnage; however, the discrepancy due to this process of averaging is not likely to be significant for successive years. – [2] Estimate.

Under the present system, all commercial fishing vessels with power, or no power of less than 1,000 gross tons, and engaged in fishing, storing, processing on board and transporting fish, as well as in other activities related to the improvement of standards in the fishing industry, such as experimenting, training and inspecting are eligible for insurance protection. Vessels engaged in pleasure fishing by owners and tourists are not eligible, although in some parts of Japan membership is retained with the system although the vessels are partially used by the growing recreational and tourist industries. Since membership is closely related to the type of affiliation which a vessel owner has with the system, it will be discussed further subsequently.

The present system offers three types of insurance protection. One type, called *general loss insurance*, corresponds to the general marine insurance which can be purchased from private insurance companies. The insured vessel owner is protected against total loss of his boat, abandonment and partial loss, which includes damage to hull and loss or damage to the engine, insulation, refrigeration, electric and electronic installations, fishing equipment and other accessories on board the vessel; also, it covers rescue expense, which includes the expense of tugging the vessel to the nearest port of safe anchorage as well as the loss of the catch or equipment if such expenses

occurred for the purpose of preventing or reducing more serious damage to the insured vessel. Moreover, subject to the payment of an additional premium, special protection is available against loss from collision with another vessel. The insured vessel owner is protected against a suit brought by the owner of the other vessel for partial or total loss of his vessel, loss of cargo and foregone earnings.

Of special interest is the so-called *general maturity insurance*, which is available to owners of wooden vessels less than 15 years old and steel vessels less than 25 years old. In addition to the protection given by general loss insurance, at the expiration of the insurance term, which is for three, six, or nine years, the insured vessel owner receives a sum of money which is equal to the contractually determined fair market value of his vessel. This type of insurance is a kind of endowment insurance where the vessel owner is induced, by paying the required premium, to accumulate a sum of money in lieu of the depreciated value of his vessel.

Finally, the system offers *special insurance*. It gives protection against total or partial loss due to extraordinary causes such as war, rioting, raids, seizure, detention, and explosion of torpedo or other explosive devices in designated waters. Parenthetically, under the existing legislation, [3] a vessel owner may purchase special protection against seizure of the crew. In case of seizure, the crew members are entitled to between 60 and 100 percent payment of their salaries. But these payments to the relatives of the seized crew do not include the foregone income which the crew could have earned by sharing the catch; also, payments are made during the duration of the seizure but not for periods longer than 76 months.

In terms of vessels and tonnage, general loss insurance is the most important of the three types of insurance offered by the system. During the fiscal year 1962 (1 April 1962 to 31 March 1963), the latest for which final counts are available, 122,790 vessels representing 893,396 gross tons carried general loss insurance. By contrast, only 2,532 vessels representing 9,973 gross tons carried maturity insurance, while the figures for special four-month insurance were 5,001 vessels and 328,669 gross tons. Since general loss insurance is of primary importance to the system, we shall pay closer attention to this than to the other two types of insurance.

The insurance amount, i.e., the sum of money to which the insured vessel

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[3] The above three types of insurance protection for fishing vessels is provided by the Fishing Vessels Loss Compensation Law. The protection for crews is provided by the Fishing Vessels Crew Payment Insurance Law.

owner is entitled in case of total loss under general loss insurance, represents a certain percentage of the fair market value of the vessel. How this market value is determined will be explained subsequently. At this point, it is important to study the ratio of the insurance amount to the market value as another index of the performance of the system. It can be seen from Table 3

TABLE 3. – INSURANCE AMOUNT, AS PERCENTAGE OF MARKET VALUE OF INSURED COMMERCIAL FISHING VESSELS, GENERAL LOSS INSURANCE, SELECTED TWO-YEAR AVERAGES [1]

Vessel category	1952/53	1956/57	1960/61	1964/65 [2]
	..... *Percentage*			
NONPOWERED	57.2	55.6	63.6	65.9
POWERED				
Less than 5 tons	53.5	51.1	58.3	67.3
5 to less than 20 tons . . .	53.2	56.7	65.6	72.8
20 " " " 50 " . . .	50.7	58.5	76.5	83.3
50 " " " 100 " . . .	61.1	67.4	85.7	97.4
100 " " " 1 000 " . . .	23.8	30.9	59.2	77.3

SOURCE: Appendix Table 2, p. 59.

[1] Computed by averaging percentages instead of monetary values; however, the discrepancy due to this procedure of averaging is not likely to be significant for successive years. – [2] Estimate.

that the pattern of change in this ratio is similar to the pattern of change in the tonnage of insured vessels observed in Table 2. Since 1952, the ratio of the insurance amount to the market value increased steadily for all vessel categories. But unlike the earlier case, the ratio for nonpowered vessels is close to the ratio of small-powered vessels of less than 5 gross tons. Again, the ratio increases with the size of powered vessels, with the exception of vessels between 100 and less than 1,000 gross tons. But during the period under study the ratio for this vessel category grew from about 24 to 77 percent. This is important, in view of the fact that vessels of 100 gross tons or larger do not receive premium subsidies and their premium rates are adjusted upward in order to compensate for the downward adjustment of premium rates for smaller vessels.

In fact, this adjustment of premium rates is another important actuarial feature of the system which is worth explaining. The 1963 actual ratio of

loss payments to the insurance amount by tonnage category is shown in column 1 of Table 4. But the premiums which the system charges the insured vessel owners are based on the adjusted rates shown in column 2. This adjustment is done on the basis of the principle of mutual aid, as follows. Actual loss ratios are adjusted downward for nonpowered vessels and for powered vessels of less than 20 gross tons, while actual ratios are adjusted upward for vessels of 100 gross tons or larger. No changes are made for the loss ratios of powered vessels of 20 and less than 100 gross tons. Also, since the loss ratio of vessels larger than 100 but smaller than 200 gross tons has increased, no upward adjustment of premium rates were made. Thus, the net effect of these adjustments is that the system receives the same total premium which would have been received without the adjustments.

TABLE 4. – ADJUSTMENT OF PREMIUM RATES, FISCAL YEAR 1963

Power/gross tonnage	Actual loss ratio (1)	Adjusted rates (2)
	Percentage	
NONPOWERED VESSELS	4.07	2.90
POWERED VESSELS		
Less than 5 tons	3.45	2.77
5 to less than 20 tons	4.88	3.85
20 " " " 50 "	2.99	2.99
50 " " " 100 "	2.31	2.31
100 tons	1.31	1.75
More than 100 to less than 200 tons	2.60	2.60
200 to less than 500 tons	0.97	1.54
500 " " " 1 000 "	1.00	1.26

SOURCE: Fishing Vessels Insurance Section, Fisheries Agency, Government of Japan.

We have seen that since the introduction of new legislation in 1952 the tonnage of insured vessels has increased. Also, the system has expanded the number of insurable risks. Furthermore, through adjustment of loss ratios the purchase of insurance protection was made more attractive to owners of vessels smaller than 20 gross tons. However, this was accomplished by an increase in the premium rates for vessels of 100 gross tons or larger. Whether

and to what extent these changes have fulfilled the overall objectives of the system will be the subject matter of the last chapter in our study. In the meantime, we shall present some of the major organizational features of the insurance co-operative system in Japan.

Organizational structure

In addition to the premium subsidies mentioned above, the system receives administrative subsidies and promotional grants. In order to understand how such financial aids are used to further the system, we must know how member vessel owners are affiliated with it. Also, we must have some unterstanding of the administrative role of important units and show how funds representing premiums, subsidies, grants and payment of claims flow through the administrative units of the system.

We have already pointed out that membership is closely connected with the type of affiliation that each insured vessel owner has with the system. This is so because premium subsidies are determined not only on the basis of motive power and vessel size but also on the type of membership affiliation, which may be *compulsory*, *collective*, or *voluntary*. Compulsory affiliation is associated with the 3,000 or so fishing co-operatives which operate along the coast of Japan. These co-operatives perform a variety of functions for their members, such as loan financing, supplying necessities, providing cold storage facilities and marketing channels for the caught fish as well as other activities related to fishing operations. The governor of each prefecture designates the geographical area of each co-operative under his jurisdiction. If two thirds of the owners of powered vessels of 1 to less than 100 gross tons of such an area vote for joining the insurance co-operative system, then all the owners of vessels under 1,000 gross tons within the area must purchase general loss insurance, which should represent at least 30 percent of the fair market value of each insured vessel. Under these conditions, it is said that the insured vessel owners are under compulsory affiliation with the system. If half the owners of powered or nonpowered vessels of less than 20 gross tons but involving no less than 15 vessels in such an area carry general loss insurance representing at least 30 percent of the market value of each insured vessel, then it is said that the insured vessel owners are under collective affiliation. In all other cases a vessel owner is said to carry insurance under voluntary affiliation with the system. For 1963, the gross tonnage of vessels carrying insurance was estimated at 605,916 under compul-

sory, 1,912 under collective, and 254,016 under voluntary affiliation, representing about 64 percent of the 1,344,650 total gross tonnage of all registered commercial fishing vessels of less than 1,000 gross tons.

TABLE 5. – PERCENTAGE OF SUBSIDIZED PREMIUMS FOR GENERAL LOSS INSURANCE, BY TYPE OF AFFILIATION AND VESSEL SIZE

Type of affiliation/vessel size (gross tons)	Subsidized premium
	Percentage
COMPULSORY AFFILIATION	
Nonpowered; powered less than 5 tons	60
Powered 5 to less than 20 tons	50
" 20 " " " 50 "	45
" 50 " " " 100 "	40
COLLECTIVE AFFILIATION	
Nonpowered; powered less than 5 tons	30
Powered 5 to less than 20 tons	25
Powered 20 tons or larger	none
VOLUNTARY AFFILIATION	none

SOURCE: Fishing Vessels Loss Compensation Law, Government of Japan.

The extent of subsidies to which the insured vessel owners are entitled under each type of affiliation is shown in Table 5. Nonpowered and powered vessels less than 5 gross tons receive 60 percent premium subsidies under compulsory affiliation. The percentage of premium subsidies decreases as the size of the vessel increases. No subsidies are given to owners of vessels larger than 100 gross tons. Under collective affiliation, the percentage of premium subsidies is half of that given under compulsory affiliation and limited to vessels under 20 gross tons. Finally, no premium subsidies are given to other vessel categories either under collective or voluntary affiliation.

Irrespective of the type of affiliation, an insured vessel owner is a member of one of the 53 insurance associations (or associations for convenience) with which he carries insurance. Forty-six of these associations are regional, each representing a prefecture. An exception to this rule is the prefecture of

Hokkaido, the northernmost prefecture of Japan, where eight associations have been established. In addition, there are seven associations for special fisheries such as tuna and skipjack, bull trawling, otter trawling, etc., with vessels of at least 20 gross tons. Their territorial jurisdiction varies from one prefecture to the whole country.

The administrative aspects of the associations are too involved and peripheral to our main objective. Generally speaking, however, each association acts as the initial underwriter of the insured vessels in its jurisdiction. It negotiates insurance policies and keeps account of collected premiums and payment of claims. Each association is run by officers elected by the member vessel owners and by the hired personnel. Their major tasks are to increase membership, especially by encouraging the establishment of a compulsory affiliation, to make sound and fair assessments of risks, to investigate periodically the seaworthiness of insured vessels, to prevent accidents or reduce their severity, to investigate the conditions under which accidents occurred, and to settle claims promptly.

Since the association's jurisdiction is based on prefectures, the above tasks could not have been carried out successfully without agents who protect the interests of the association and maintain direct contact with the insured vessel owners. In this respect, the greatest help which the association receives is from the fishing co-operatives in its territory. The role of the co-operatives can scarcely be overestimated. Not only do they collect the premiums of their insured members for the association, but they also help the association to conduct accident prevention campaigns and promote sound insurance principles among their members. The important role of co-operatives will be discussed below.

Above the 53 associations in the administrative ladder is the Central Insurance Society. Its primary functions are actuarial and supervisory. The Central Society compiles actuarial statistics and prepares premium rate tables for the associations, investigates claims on behalf of the government or the associations, and supplies the associations with the technical personnel which is necessary for the proper technical supervision of the insured vessels. Finally, all 53 associations reinsure their risks with the Special Reinsurance Accounts (SRA). Although some of the supervisory authority rests with the governor of each prefecture, administratively the associations and the Central Society are under the jurisdiction of the Ministry of Agriculture and Forestry, while SRA is under the jurisdiction of the Ministry of Agriculture and Forestry and the Ministry of Finance.

Perhaps we may be able to get a clearer understanding of the inner struc-

ture of the system if we study the flow of funds through its units, as shown in Figure 3. The associations collect premiums, minus the subsidies when justified, either directly from the insured vessel owners or through their co-operatives. The association in turn reinsures 90 percent of its risks under the general loss insurance and 100 percent under the general maturity and special insurance policies with SRA. This account receives the reinsurance premiums paid by the associations and the premium subsidies transferred from the National Treasury. When legitimate claims occur, SRA indemnifies the associations in proportion to the reinsurance coverage, i.e., 90 percent of the total claim for general loss and 100 percent for maturity and special insurance policies. The Central Society charges a sum equal to 2 percent of claim payments for services rendered to the associations, of which the associations pay 10 percent and SRA 90 percent. Then each association indemnifies the vessel owners to the full sum claimed for legitimate losses.

The reserve fund of SRA will be discussed later. At this point, let us consider the reserve fund kept by each association. After payment of reinsurance premiums, the retained premiums are reserved for paying 10 percent of the legitimate claims which may arise under the general loss insurance. These reserves should accumulate to an amount which is specified by the by-laws of the association and which must represent at least 20 percent of the total sum paid out for claims each year. If, at the end of a given fiscal year, the reserves exceed this specified amount, the excess sum may be shared by the insured vessel owners of the association who carried insurance uninterruptedly and without accidents for several years. On the other hand, if at the end of a given fiscal year the reserve fund is insufficient to pay all legitimate claims, the portion of the claim (10 percent) which the association must pay is reduced accordingly or, in more serious situations, the insured vessel owner receives only 90 percent of his claim from SRA.

In addition to the flow of funds for premiums and claims, there is the flow of subsidized administrative expenses and commissions of the National Treasury to SRA, as shown in Figure 3. Most administrative expenses of SRA are covered by the National Treasury. In turn, SRA covers part of the commissions which the associations pay to co-operatives for collecting premiums from their insured members, the expenses of the Central Society for accident prevention campaigns and for the technical assistance given to associations, the outlay of the associations for educational material and courses of instruction on accident prevention, and under certain conditions, part of the administrative expenses of regional associations with limited

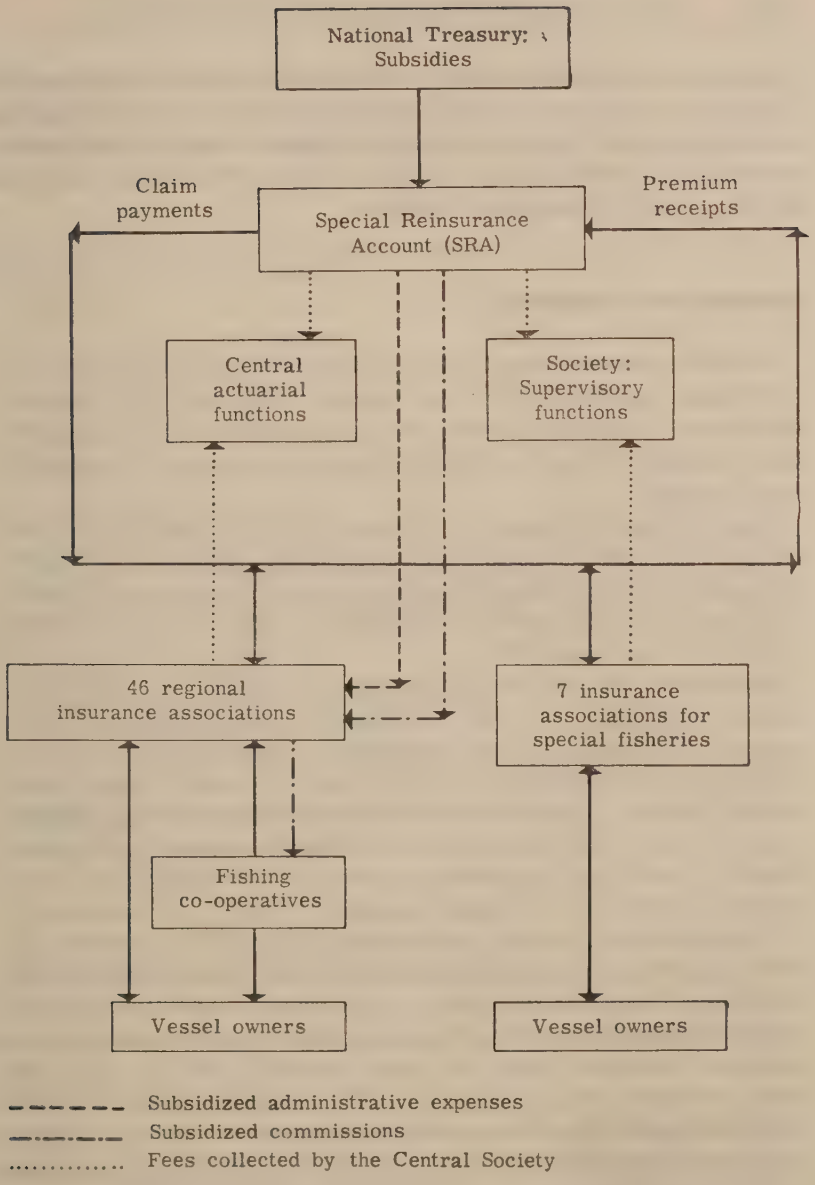

FIGURE 3. – Flow of funds in the Japanese insurance co-operative system for commercial fishing vessels.

membership of small-sized vessels. If the financial position of such associations shows no improvement, and if the revenue from extra premiums which should not exceed 35 percent of regular premiums paid by their insured members is not sufficient, they receive a subsidy representing as much as 50 percent of their administrative expenses.

Determination of premiums

When the present system was established, premiums were based on the information available from private insurance companies. With the accumulation of experience, however, the Central Society of the system was able to compile extensive actuarial statistics which permitted a detailed rate structure.

Premium rates for general loss insurance vary with several factors, such as age of the vessel, material of hull, gross tonnage, equipment and instruments, port of operation, fishing grounds, type of fishing, etc. Of course, these premium rates represent adjustments of actual loss ratios explained earlier (see Table 4, p. 36).

Reinsurance premium rates for general loss insurance are below insurance premium rates. They vary with the gross tonnage category of a vessel and type of fisheries. In addition, reinsurance rates differentiate between unusual and usual hazards. Premium rates for unusual hazards reflect the loss ratio of an association due to natural disasters such as typhoons, tidal waves, etc. Premium rates for usual hazards represent the average or standard loss ratio of an association over the preceeding ten years, after eliminating losses due to unusual hazards.

Premium rates for general maturity insurance consist of two parts. The first part represents the premium rates of the general loss insurance already explained. The second represents the rates required for the accumulation of the stipulated lump sum payment at the expiration of the term. For this additional protection offered by general maturity insurance, reinsurance rates are equal to the premium rates. With respect to reinsurance rates, the same applies also in the case of special insurance. This is so because in the case of the additional protection under the general maturity insurance and the special protection under the special insurance the associations reinsure 100 percent of their risks with SRA.

Under this elaborate system of premium and reinsurance rates, it is difficult to show in detail how premiums are determined. For the limited pur-

pose at hand, we shall explain the basic formulas and use a representative example to illustrate their application.

The basic formulas for gross, net and reinsurance premium rates are given below.

A. Gross and net premium rate formulas

Let:

(1) $O = B\ (1 + A - D)$
$N = O + T$
$G = N + O \times E$

Where

O = usual premium rate
B = basic premium rate (total or partial loss and rescue expense)
A = Percent of ordinary rate for old vessels
D = discount of ordinary rate for a record free of accidents during previous year (percent)
N = net premium rate
T = premium rate for unusual hazards
G = gross premium rate
E = extra premium rate to meet business expenses of the association

Substituting for O in N, we have

$$N = B\ (1 + A - D) + T$$

Substituting for O and N in G, we obtain

(2) $$\boxed{G = B\ (1 + A - D)\ (1 + E) + T}$$

B. Reinsurance premium rate formula

(3) $$R = S\ (1 + A - D) + T$$

Where

R = (net) reinsurance premium rate
S = standard reinsurance rate for insurance on usual hazards and rescue expense

While A, D and T are defined above.

The following example illustrates how premiums are determined for the insurance protection offered by general loss, general maturity and special insurance policies. Let us consider a 12-year-old wooden powered vessel of 11 gross tons under compulsory affiliation with the system and with no losses during the preceding year.

The *market value* of the vessel is determined on the basis of the standard unit price per gross ton; since for this type of vessel the standard unit price per gross ton is 56,000 yen [4] (Appendix 1, Table 3, II-B-1), the market value of the vessel is

$$56{,}000 \times 11 = 616{,}000 \text{ yen}$$

Furthermore, we must determine the insurance amount for usual and unusual hazards. The vessel owner is entitled to a premium subsidy for an insurance amount representing as much as 60 percent of the market value of the vessel, as shown in Table 6. Although the owner may insure for larger amounts, he is not entitled to a premium subsidy for a coverage in excess of the 60 percent ratio. For the sake of simplicity, let us assume that the vessel owner decides to insure his vessel for an amount representing 60 percent of the market value only. Thus, for our vessel the insurance amount against *usual hazards* is

$$616{,}000 \times 0.60 = 369{,}600 \text{ yen}$$

On the other hand, the vessel owner is entitled to a premium subsidy against *unusual hazards* for the full insurance amount of 369,600 yen.

QUESTION 1: What premium does the owner pay for general loss insurance?

ANSWER: The following three major steps are involved in finding the answer.

Step 1: Find gross premium.

From detailed actuarial tables we find that B = 4 percent, A = 15 percent, D = 10 percent, T = 0.50 percent, and E = 20 percent. Substituting these values in formula (2), we obtain the gross premium rate

$$G = 4\ (1 + 0.15 - 0.10) \times (1 + 0.20) + 0.50 = 5.54 \text{ percent}$$

[4] 1 U.S. dollar = 360 yen.

TABLE 6. – INSURANCE AMOUNT FOR USUAL HAZARDS COVERED BY GOVERNMENT SUBSIDY FOR GENERAL LOSS INSURANCE

Type of affiliation/gross tonnage	Percentage of market value [1] (1)	Subsidy ratio (2)
COMPULSORY AFFILIATION		
Nonpowered vessels	0.60	0.60
Powered vessels		
Less than 5 tons	0.60	0.60
5 to less than 20 tons	0.60	0.50
20 " " " 50 "	0.50	0.45
50 " " " 100 "	0.47	0.40
COLLECTIVE AFFILIATION		
Nonpowered vessels	0.60	0.30
Powered vessels		
Less than 5 tons	0.60	0.30
5 to less than 20 tons	0.60	0.25

SOURCE: Fishing Vessels Loss Compensation Law, Government of Japan.

[1] A vessel owner may insure his vessel for amounts representing higher percentages than those indicated. In such case, however, no subsidies are given to excess insurance amounts.

Multiplying the amount for unusual hazards by the above gross premium rate, the gross premium is

$$369{,}600 \times 0.0554 = 20{,}476 \text{ yen}$$

Step 2: Find government subsidy.

Since the vessel owner is associated with the system under compulsory affiliation, from Table 6 we find that he is entitled to a subsidy representing 50 percent of the amount for usual hazards. Substituting the given rates in formula (1), we have

$$0 = 4\ (1 + 0.15 - 0.10) = 4.20 \text{ percent}$$

which is the premium rate against usual hazards. Multiplying the amount for usual hazards by this rate and the subsidy ratio, we obtain

$$369{,}600 \times 0.042 \times 0.50 = 7{,}762 \text{ yen}$$

which is the subsidized premium for usual hazards.

In addition, the vessel owner is entitled to a subsidy on the amount for unusual hazards, which is obtained by multiplying this amount by the premium rate T for unusual hazards. Since T = 0.50 percent, we have

$$369{,}600 \times 0.005 = 1{,}848 \text{ yen}$$

Hence, the total subsidized premium is

$$7{,}762 + 1{,}848 = 9{,}610 \text{ yen}$$

Step 3: Find vessel owner's premium.

The premium which the vessel owner must pay is the gross premium reduced by the above subsidy:

$$20{,}476 - 9{,}610 = \boxed{10{,}866 \text{ yen}}$$

QUESTION 2: What reinsurance premium does the association pay?

ANSWER: After obtaining the standard premium rate S from detailed actuarial tables, finding the answer involves the following steps.

Step 1: Find reinsurance rate.

Since S = 3.70 percent, substituting the given information in formula (3), we have

$$R = 3.70\ (1 + 0.15 - 0.10) + 0.50 = 4.385 \text{ percent}$$

Step 2: Find gross reinsurance premium.

Since reinsurance covers 90 percent of the insured amount, we multiply the amount for unusual hazards by this percentage and the reinsurance premium rate to obtain

$$369{,}600 \times 0.90 \times 0.04385 = 14{,}586 \text{ yen}$$

Step 3: Find net reinsurance premium.

Subtracting the government subsidized premium computed earlier from the gross reinsurance premium, the premium which the association must pay SRA is

$$14{,}586 - 9{,}610 = \boxed{4{,}976 \text{ yen}}$$

Note that although SRA pays 90 percent of legitimate claims under general loss insurance, in this example it receives a reinsurance premium which represents only about 46 percent (4,976:10,866) of the premium the association collects from the insured vessel owner. Also, the gross reinsurance premium, which includes the premium subsidy, represents only about 72 percent (14,586:20,476) of gross premiums.

QUESTION 3: What is the premium which the vessel owner must pay when general loss insurance covers collision?

ANSWER: The basic premium rate of 4 percent is increased by 5 to 4.20 percent. The rest of the calculations are the same, so that now the vessel owner pays a premium of

$$21{,}407 - 9{,}998 = \boxed{11{,}409 \text{ yen}}$$

QUESTION 4: What reinsurance premium must the vessel owner's association pay?

ANSWER: Since the standard premium rate 3.70 percent must be increased by 5 percent to 3.885, the reinsurance premium rate R = 4.57925 percent, and the reinsurance premium is

$$15{,}232 - 9{,}998 = \boxed{5{,}234 \text{ yen}}$$

We have already mentioned that general maturity insurance includes the protection given by general loss insurance plus the provision of a lump sum payment at expiration. For the latter benefit, special premium rates are provided such as the rates shown in Table 7. Let us consider again our representative example, and let us assume that the vessel owner wishes to purchase a six-year general maturity insurance for 616,000 yen representing the current market value of his vessel.

QUESTION 5: What premium should he pay?

ANSWER: From Table 7 we find that the premium rate is 13.09 percent annually. Hence, in addition to 11,409 yen for general loss insurance, including collision, the vessel owner must pay annually

$$616{,}000 \times 0.01309 = 80{,}634 \text{ yen}$$

or a total of

$$11{,}409 + 80{,}634 = \boxed{92{,}043 \text{ yen}}$$

TABLE 7. – PREMIUM RATES[1] FOR MATURITY INSURANCE

Type of vessel	Term (years)		
	Three	Six	Nine
	Percentage		
NONPOWERED	29.47	13.39	8.09
POWERED			
Less than 5 tons	29.47	13.39	8.09
5 to less than 20 tons	29.11	13.09	7.83
20 " " " 1 000 "	29.35	13.29	8.00

SOURCE: By-laws of the associations and Fishing Vessels Loss Compensation Law, Government of Japan.

[1] Excludes rates for protection offered by general loss insurance.

and if this premium were paid in two semiannual installments, the total amount to be paid annually would be 92,950 yen.

QUESTION 6: What reinsurance premium does his association pay?

ANSWER: Since reinsurance rates are the same as premium rates, the association pays SRA the sum of

$$5{,}234 + 80{,}634 = \boxed{85{,}868 \text{ yen}}$$

By the end of the six-year term the vessel owner, assuming no total loss in the meantime, is entitled to a maturity payment of 616,000 yen.

The terms for special insurance and for crew protection are usually four months with a premium rate between 0.10 and 0.12 percent per month for protection against seizure of the vessel and of 1.16 percent per month for protection against seizure of the crew. Let us assume that the owner of the vessel in our example wishes to insure for four months against seizure the full market value of 616,000 yen.

QUESTION 7: What premium does the vessel owner pay?

ANSWER: He must pay a total premium of

$$616{,}000 \times 0.001 \times 4 = \boxed{2{,}464 \text{ yen}}$$

QUESTION 8: What reinsurance premium does the association pay?

ANSWER: Since 100 percent of the risk is reinsured, the association pays SRA 2,464 yen, the total premium collected from the insured vessel owner.

Let us also assume that the vessel owner in our example wishes to insure against seizure of the crew for four months and for a sum of 100,000 yen per month. This sum represents the total monthly payroll which the vessel's crew will receive in case of seizure.

QUESTION 9: What additional premium does he pay?

ANSWER: The vessel owner must pay an additional premium of

$$100{,}000 \times 0.0116 \times 4 = \boxed{4{,}640 \text{ yen}}$$

plus 464 yen, representing a 10 percent business charge.

QUESTION 10: What insurance premium does the association pay?

ANSWER: Since the association reinsures 90 percent of the risk with SRA it pays a reinsurance premium of 4,176 yen.

Controls and safeguards for settlement of claims

Certain aspects of this important subject have already been covered in earlier sections dealing with insurance coverage and the organizational structure of the system. Here, we shall concentrate on discussing briefly certain safeguards for the proper assessment and diversification of risks, a few important formal controls for the equitable and fair settlement of claims, and some informal controls which seem to help the prevention of accident occurrence.

The elaborate actuarial tables of the Central Society offer valuable information for the proper assessment and diversification of insurable risks. The standard price per gross ton is a first guide for determining a standard market value for an insured vessel on the basis of several general criteria such as material of the hull, tonnage, motive power, and age. In addition, each association has authority to negotiate an insurance policy at market values as low as 70 or as high as 130 percent of the standard market value for wooden vessels and between 80 and 120 percent for steel vessels, depending on the prevailing characteristics of a particular vessel and local conditions. Some of the criteria are the material of the hull, the general seaworthiness of the vessel, the equipment and instruments on board not included in the standard price, a great difference in the age and size of the vessel compared with the age and power of the engine, the fact that the owner

carries insurance on his vessel with a private insurance company, and the local conditions related to fishing operations. This flexibility in determining the market value allows, on the one hand, diversification of risks which is greater and, on the other hand, response to changing local conditions which is quicker than could have been obtained otherwise.

Furthermore, the general loss insurance policy is renegotiated annually. This permits a continuous adjustment of the market value of the vessel to reflect changes due to aging, reproduction costs, and current market conditions. Thus, the fact that the ratio of the insurance amount to the market value has been consistently increasing since 1952 (see Table 3, p. 35) has not created conditions which may indicate violation of sound insurance principles. An added safeguard in this respect is connected with general maturity insurance. In case of total loss before the expiration of the term, the insured vessel owner is entitled to the insurance amount under the part of his policy dealing with general loss insurance coverage. He is not entitled to the full benefits accruing at the expiration of the term. Hence, the fund which is accumulated with his annual payments may act as an incentive for him to be particularly careful and prudent.

Additional actuarial safeguards exist at the reinsurance level. The net reinsurance premium rate is determined on the basis of the average loss experience of all vessels insured by the system of usual hazards. Hence, this rate reflects to a large extent the average performance of each type of vessel in the system. The lower the rate, the larger the premium, and the higher the rate, the smaller the premium which the association can retain for paying 10 percent of the claims. We shall see below that this arrangement may have its undesirable effects with respect to the actuarial position of some associations whose membership consists predominantly of small-sized vessels with high loss ratios. At this point, it is important to emphasize that the net reinsurance premium rate may be an incentive for the officers and personnel of an association to do everything within their power to reduce this rate. For a lower rate may eventually mean dividends to worthy members of the association with probably favorable after-effects on increases in membership.

We have already mentioned the special efforts of the system to inform and educate the insured vessel owners regarding accident prevention and the advantages of sound insurance policies. These efforts are part of an elaborate system of checks and controls between the different units of the insurance co-operative system for a fair and equitable settlement of legitimate claims.

In the first place, the conditions under which an insured vessel owner is entitled to a claim in case of total or partial loss are specified in detail. The insured must follow a well-prescribed procedure for filing his claim. He must make every effort to prevent or minimize the consequences of the accident, report the accident promptly and give an accurate description of the circumstances under which it has taken place, and co-operate with the agent and other representatives of the association for any inspection or investigation required to assess the damage. An infraction of these rules may be cause for his association to decline payment in part or in total of his otherwise legitimate claim. Naturally, in cases where there is evidence that a loss is due to gross negligence or premeditation, the entire policy is considered void.

In the second place, there are additional checks and controls for the assessment of claims at the reinsurance level. The evidence for a claim submitted by an association to SRA is reexamined by the Central Society. Submitted bills paid to local shipyards are compared with the standard list compiled from the records of major shipyards or engine factories. When necessary, the insured vessel is surveyed again; and the claimed sum is reduced if it is found not conforming to nationwide established standards.

Finally, the Ministry of Agriculture, the prefecture governors, and the district courts control the establishment, management and dissolution of the associations. Among other things, the associations must submit annually audited financial reports to the ministry. These administrative controls and checks, which are independent of the actuarial and technical supervision of the Central Society, are additional safeguards for the proper functioning of the associations in general and for the equitable and fair settlement of claims in particular.

In discussing the organizational structure of the system, we emphasized the important role that co-operatives play in the prevention of accidents and the promotion of sound insurance principles. Probably the most salient contribution of the co-operatives is the degree of informal control that they are capable of exerting on their insured member vessel owners. Since membership in a co-operative is limited to a village or small geographical area, accidents in violation of the contractual and administrative regulations of proper conduct such as gross negligence or even willful destruction of insured property cannot easily remain undetected. Furthermore, the fact that such acts are likely to meet strong disapproval or even social ostracism may act as powerful and effective deterrents. Thus, this self-policing mechanism at the village level seems to be the most significant single

factor for the proper functioning of the insurance co-operative system among small and medium-sized vessels. The magnitude of this valuable informal function performed by the co-operatives can be measured by the fact that in 1963 as much as 70 percent of the insured tonnage was under compulsory affiliation with the system through the co-operatives.

Past, present and future

In the preceding section we traced the establishment and growth of the insurance co-operative system in Japan, presenting the system's organizational structure and some of its features. We were thus able to point to some of the accomplishments of this insurance co-operative movement. Although our treatment of such a complex system is sketchy in many respects, it may be considered inadequate if no attempt were made to evaluate the system's overall performance and examine some of the conditions which may determine its future prospects.

Although the system may not as yet claim industrywide coverage of registered commercial vessels, since 1952 membership with the associations steadily increased both in terms of insured vessels and tonnage. Also, the amount of protection, measured in terms of the insurance ratio, i.e., insurance amount over the market value, expanded considerably. These gains can be attributed to a number of factors, of which the following seem to be largely responsible. Government subsidies for premiums and administrative expenses have strengthened the financial position of the associations. In addition, these subsidies have increased the co-operation between the associations and co-operatives, which is so vital to the growth of both organizations. The guidance and supervision of the Central Society helped the associations to effectively diversify their risks and operate on a sound actuarial and technical basis. Reinsurance with SRA introduced stability in the system and enabled the associations to expand their operations by permitting an industrywide and nationwide spread of their risks. Finally, the formal and informal controls and safeguards contributed to systematic assessment of risks and to equitable and fair settlement of claims.

In the light of these favorable developments, what has been the loss experience of the insurance co-operative system? Information on this point is shown in Table 8. Each loss ratio, i.e., the yen paid out for claims per 100 yen of insurance amount represent an average of the ratio of three years reported at midyear. For example, the 1952 loss ratio is the average of the

TABLE 8. – LOSS RATIOS [1] FOR USUAL HAZARDS OF COMMERCIAL FISHING VESSELS, GENERAL LOSS INSURANCE, FISCAL YEARS 1951-60 (IN YEN)

Vessel category	Midyear of a three-year moving average [2]							1959	1951-60 average
	1952	1953	1954	1955	1956	1957	1958		
NONPOWERED	3.85	3.52	4.40	4.47	3.93	3.60	4.13	4.17	4.04
POWERED									
Less than 5 tons	4.31	4.02	4.29	3.85	3.26	3.06	3.29	3.28	3.44
5 to less than 20 tons	4.12	4.76	5.11	5.24	4.67	4.70	4.99	4.95	4.84
20 " " " 50 "	2.70	3.44	3.33	3.25	3.01	2.86	2.78	2.77	2.94
50 " " " 100 "	2.55	2.53	2.33	2.17	2.16	2.04	2.10	2.19	2.26
100 " " " 1 000 "	1.98	1.86	1.35	1.61	1.59	1.62	1.59	1.66	1.55

SOURCE: Appendix Table 4, p. 63.

[1] Represents loss payments per 100 yen of insurance amount. – [2] Computed by averaging three-year ratios instead of monetary values; however, the discrepancy due to this procedure of averaging is not likely to be important for successive years.

loss ratios for 1951, 1952 and 1953. It can be seen that between 1951 and 1960, the loss ratio for powered vessels of less than 5 gross tons and for vessels between 50 and less than 1,000 gross tons showed considerable improvement. The loss ratios for other vessel categories either remained unchanged or showed a slight increase. Thus, if loss ratios are considered as representative indicators of performance, one may argue that the system does not seem to show a remarkable improvement. This, however, is a superficial observation. Firstly, although modern equipment and fishing techniques may have contributed to the improvement of safety standards, the frequency of losses, especially total losses, increased, since many vessels have extended the area of their fishing operations to more distant waters. Secondly, claims attributed to engine trouble augmented because many small nonpowered vessels were motorized by the installation of converted engines of motor vehicles, tractors and other engines not originally designed for marine use. Thirdly, with the increase in the membership of small vessel owners petty claims have increased. Last but not least, annual losses have fluctuated widely. In order to avoid annual deficits, premium ratios were deliberately set at levels sufficiently high to meet the loss experience of the worst years. Thus, it is quite remarkable that loss ratios for all vessel categories remained stable in spite of increasing losses because of growth in membership and amount of protection.

While loss ratios remained stable during 1951-60, premium ratios actually paid by the insured vessel owners declined, as shown in column 3 of Table 9. On the average, in 1951 a vessel owner paid 3.24 yen for every 100 yen of insurance amount, while in 1963 he paid as little as 2.28 yen for the same amount of protection. It is interesting to note, however, that this improvement in premium ratios was confined to powered vessels only. In fact, more detailed statistics not shown in Table 9 indicate that this improvement was confined to powered vessels of 5 or more gross tons. By contrast, during the same period premium ratios for nonpowered vessels, shown in column 1 of Table 9, more than doubled. On the average, in 1951/52 the owner of a nonpowered vessel paid about 2.02 yen per 100 yen of insurance amount, while in 1961-63 he paid about 5.05 yen for the same amount of protection. It is important to realize that improvement in the premium ratios for powered vessels has occurred particularly among the vessel categories where premium rates were adjusted upward under the principle of mutual aid.

TABLE 9. – PREMIUM RATIOS [1] ACTUALLY PAID BY INSURED VESSEL OWNERS, GENERAL LOSS INSURANCE, FISCAL YEARS 1951-63

Year	Nonpowered (1)	Powered (2)	All vessels (3)
1951	1.89	3.26	3.24
1952	2.14	3.11	3.11
1953	2.31	3.22	3.21
1954	2.36	3.15	3.15
1955	2.34	3.12	3.12
1956	2.46	3.07	3.06
1957	2.50	3.10	3.10
1958	2.54	3.06	3.06
1959	2.59	3.02	3.02
1960	5.27	2.70	2.71
1961	5.18	2.64	2.65
1962	4.98	2.57	2.58
1963 [2]	5.06	2.27	2.28

SOURCE: Fishing Vessels Insurance Section, Fisheries Agency, Government of Japan.

[1] Represent premium payments per 100 yen of insurance amount. – [2] Preliminary.

Some of the highlights of the loss experience of the system are given in Table 10. After 1958, the reinsurance premium which SRA collected from the associations was not sufficient to pay the losses claimed by the associations for reinsurance protection. However, if the subsidy which the National Treasury granted to the insured vessel owners is added, SRA has a surplus, as shown in item 5 of the table. Thus, the Treasury's subsidy is a measure of the additional reinsurance premium which the associations must otherwise pay in order to enable SRA to obtain the surplus indicated in item 5. Also, this subsidy may be considered as a measure of the extent to which the national government underwrites the actuarial experience of the insurance co-operative system in Japan.

TABLE 10. – AGGREGATE RECEIPTS AND PAYMENTS OF THE SPECIAL REINSURANCE ACCOUNT, GENERAL LOSS INSURANCE, FISCAL YEARS 1957-63

Item	1957	1958	1959	1960	1961	1962[1]	1963[1]
	Million yen						
Reinsurance premiums collected from associations	1 067	1 134	1 297	1 443	1 741	1 456	1 878
Minus losses paid to associations	866	1 143	1 506	1 704	1 869	1 791	2 173
Surplus (deficit)	201	(9)	(209)	(261)	(128)	(335)	(295)
Plus Treasury's subsidy	376	419	467	502	569	569	626
Final surplus (deficit)	577	410	258	241	441	234	331

SOURCE: Appendix Table 5, p. 64.

[1] Preliminary for 1962 and budgetary for 1963.

Future prospects for steady growth and improvement are dimmed by a number of institutional and actuarial problems. At present, noninsured owners of small and medium-sized vessels still outnumber the insured in spite of systematic efforts to promote the protective and financial advantages of the system. This situation may be due partly to apathy on the part of vessel owners and their resistance to change. This negative attitude is reinforced among fishermen of coastal waters, where the need for insurance protection is not clearly evident because of the rare occurrence of accidents. But the most important impediment to a continuous growth in membership with the system seems to be the strict rules and conditions governing compulsory affiliation under which affiliated vessel owners are entitled to premium subsidies.

From the actuarial standpoint, the system faces two important problems. One is related to the standard reinsurance rate. Consider Association A with a large area populated by a great number of small or medium-sized boats. Association A has higher costs per dollar of collected premiums for handling its risks than Association B with a small area populated by a few large vessels. In addition, the standard reinsurance rate is higher for Association A than for Association B since it is based on the average loss experience of usual hazards which is lower as the vessel size increases. Since reinsurance premiums are largely determined on the basis of the standard reinsurance rate, Association A is likely to retain a smaller portion of the collected premiums than Association B. Thus, the financial disparity between associations of types A and B increases with time. In spite of special administrative subsidies given to associations of type A, their financial position may weaken with time, making it increasingly difficult to retain, let alone increase, their membership.

The other actuarial problem is related to the upward adjustment of premium rates for 100 gross tons or larger vessels. Although the upward adjusted premium rates may still be below the prevailing commercial rates, it is likely that private insurance companies carefully select some of the best risks in this vessel category and offer rates below adjusted rates. There is some evidence which points toward this favorable selection. Private insurance companies which insure the approximate 100 ships of 1,000 or more gross tons, have offered insurance protection to a number of vessels in the 100 to 250-ton category at premium rates below the adjusted rates of the system. Thus, while the upward adjustment of premium rates for large vessels is effected in order to lighten the burden of smaller vessels, this adjustment raises the important question of the competitive relation between private insurance and insurance subsidized by the government. At present, an agreement has been reached between the Commercial Vessel Loss Indemnity Society representing private insurers and the Central Society representing the Fishing Vessels Insurance Section of the Fisheries Agency to refrain from a unilateral reduction of premium rates without prior notice. Admittedly, it is rather difficult to anticipate the vessel owner's reaction to this matter. It is true that some private insurers may be eager to give prompt service in addition to low premium rates. But it is equally true that other factors such as the type of affiliation, the vessel owner's relation with the insured fellow fishermen, and the direct and indirect benefits which he receives from his insurance association may more than offset the advantages which some private insurers are eager to offer.

In sum, in the organizational and actuarial fields, results in general are encouraging. However, there are a number of problems such as the ones briefly discussed above which seem to raise serious obstacles to the system's future development. Whether or not the system will some day become truly nationwide, offering insurance protection to a decidedly large percentage of the vessel population engaged in commercial fishing, only time and the effect of pending amendments to the present legislation designed to relax the strict conditions of compulsory affiliation can tell.

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Appendix tables

TABLE 1. – TONNAGE OF INSURED VESSELS AS PERCENTAGE OF TONNAGE OF ALL REGISTERED COMMERCIAL FISHING VESSELS, GENERAL LOSS INSURANCE, FISCAL YEARS 1952 TO 1965

Vessel category [1]		Fiscal year													
		1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962 [2]	1963 [2]	1964 [2]	1965 [2]
		Percentage													
Nonpowered	T	4.9	6.2	6.8	8.5	9.5	10.5	11.1	9.4	9.9	10.0	10.1	10.2	10.3	10.3
	Cm				8.0	8.8	9.8	10.7	9.3	9.7	9.7	9.8	9.9	10.0	10.0
	Cl									0	0	0	0.1	0.2	0.2
	V				0.5	0.7	0.7	0.4	0.1	0.2	0.3	0.3	0.2	0.1	0.1
Powered	T	29.4	33.1	33.4	37.9	38.1	40.4	42.9	44.0	52.2	54.1	54.6	54.7	54.7	54.7
	Cm				37.2	37.4	39.6	42.2	43.4	51.1	52.3	52.8	52.9	52.9	52.9
0-4.9 T	Cl									0.3	0.5	0.5	0.5	0.5	0.5
	V				0.7	0.7	0.8	0.7	0.6	0.8	1.3	1.3	1.3	1.3	1.3
	T	28.8	34.6	39.3	44.8	47.4	51.1	53.5	54.9	61.4	67.6	72.4	74.5	75.6	77.1
	Cm				40.9	44.2	47.9	50.8	53.1	59.1	64.9	69.5	71.5	72.6	74.0
5-19 T	Cl									0.4	0.1	0.2	0.2	0.2	0.2
	V				3.9	3.2	3.2	2.7	1.8	2.3	2.6	2.7	2.8	2.8	2.9
	T	37.6	40.9	52.9	60.1	62.5	68.3	72.5	79.1	83.4	84.0	85.7	87.1	88.2	89.1
20-49 T	Cm				45.1	53.1	58.8	64.4	71.8	75.9	76.6	78.1	79.4	80.4	81.2
	V				15.0	9.4	9.5	8.1	7.3	7.5	7.4	7.6	7.7	7.8	7.9
	T	64.8	73.7	79.7	87.7	87.8	89.5	86.2	89.6	89.9	92.3	92.3	92.3	92.3	92.3
50-99 T	Cm				51.3	59.7	67.3	68.8	73.3	75.0	78.0	78.0	78.0	78.0	78.0
	V				36.4	28.1	22.2	17.4	16.3	14.9	14.3	14.3	14.3	14.3	14.3
100-999 T	T	48.0	57.9	59.7	64.0	66.2	63.7	64.8	63.4	62.6	63.3	63.0	63.2	63.3	63.4

SOURCE: Fishing Vessels Insurance Section, Fisheries Agency, Government of Japan.

[1] T = total; Cm = compulsory; Cl = collective; and V = voluntary affiliation. – [2] Estimated.

TABLE 2. – INSURANCE AMOUNT, AS PERCENTAGE OF MARKET VALUE OF INSURED COMMERCIAL FISHING VESSELS, GENERAL LOSS INSURANCE, FISCAL YEARS 1952 TO 1965

Vessel category	Fiscal year													
	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962[1]	1963[1]	1964[1]	1965[1]
	Percentage													
Nonpowered	56.4	57.9	56.7	55.3	55.4	55.8	57.5	57.3	61.3	65.9	65.9	65.9	65.9	65.9
Powered: 0-4.9 T	52.1	54.9	46.6	53.9	53.8	48.3	55.6	56.4	58.1	58.4	65.0	65.9	66.9	67.6
Powered: 5-19 T	52.6	53.8	54.7	54.5	56.2	57.2	59.5	61.2	64.2	66.9	72.2	72.7	72.7	72.8
Powered: 20-49 T	49.0	52.3	51.6	54.6	57.9	59.0	63.8	68.4	74.8	78.1	79.7	81.9	82.9	83.7
Powered: 50-99 T	64.0	58.2	55.1	60.8	66.2	68.6	75.4	79.4	83.9	87.4	91.0	94.3	97.4	97.4
Powered: 100-999 T	20.2	26.5	25.4	29.3	29.4	32.3	37.4	44.0	53.6	65.2	71.0	77.2	77.2	77.3

SOURCE: Fishing Vessels Insurance Statistics, Fisheries Agency, 1963 budget, Government of Japan.

[1] Estimated.

TABLE 3. – STANDARD MARKET VALUE [1] OF COMMERCIAL FISHING VESSELS, IN THOUSANDS OF YEN [2] PER GROSS TON

I. STEEL VESSELS

A. Fishing vessels launched after 1 April 1960

1. *Gross tonnage: less than 200 tons*

Age \ Type of fisheries	Whaling, bull trawl, tuna and skipjack, salmon, purse seine (netter)	Bull trawl (west of 130° E), carrier and others
Less than 1 year	400	300
1-3 years	360	270
3-6 "	308	230
6-10 "	244	182
10-15 "	184	138
15-20 "	132	100
20-25 "	92	70
25 years and over	80	60

2. *Gross tonnage: 200 tons and over*

Age \ Type of fisheries	Whaling, bull trawl, tuna and skipjack	Carrier and others
Less than 1 year	360	280
1-3 years	324	252
3-6 "	276	186
6-10 "	220	170
10-15 "	165	128
15-20 "	118	92
20-25 "	82	64
25 years and over	72	56

[1] In cases I-A-1, I-A-2 and II-A-1, the unit price per ton includes hull, engines, and *all* installations on board. Hence, the market value of a vessel is the product of gross tonnage by the appropriate unit price per ton. In all other cases, installations other than fishing gear and equipment on board are not included in the unit price; the value of such installations is assessed separately. – [2] U.S. dollar = 360 yen.

TABLE 3. – STANDARD MARKET VALUE OF COMMERCIAL FISHING VESSELS, IN THOUSANDS OF YEN PER GROSS TON (*continued*)

B. Fishing vessels launched prior to 1 April 1960

Age \ Type of fisheries	Whaling	Skipjack pole and line	Bull trawl, tuna long line purse seine (netter)	Carrier and others
3-6 years	248	188	173	158
6-10 "	198	150	138	126
10-15 "	162	123	113	103
15-20 "	142	108	99	90
20-25 "	125	95	87	80
25 years and over	116	88	81	74

II. WOODEN VESSELS

A. Powered fishing vessels of 20 tons and over

1. *Vessels launched after 1 April 1960*

Age \ Type of fisheries	Skipjack, mackerel pole and line, whaling	Bull trawl, tuna long line, salmon, purse seine (netter)	Carrier and others
Less than 1 year	260	250	220
1-3 years	220	212	186
3-6 "	170	162	142
6-10 "	114	110	96
10-15 "	72	70	60
15 years and over	52	50	40

TABLE 3. – STANDARD MARKET VALUE OF COMMERCIAL FISHING VESSELS, IN THOUSANDS OF YEN PER GROSS TON (*concluded*)

2. *Vessels launched prior to 1 April 1960*

Age \ Type of fisheries	Skipjack pole and line	Bull trawl, tuna long line, salmon, purse seine (netter)	Carrier and others
3-6 years	109	102	95
6-10 "	82	77	71
10-15 "	59	56	52
15 years and over	48	45	42

B. Powered fishing vessels of less than 20 tons and nonpowered vessels

1. *Vessels launched after 1 April 1960*

Age \ Type of fisheries	Powered	Nonpowered
Less than 1 year	200	90
1-3 years	170	60
3-6 "	130	45
6-10 "	88	30
10-15 "	56	20
15 years and over	40	14

2. *Vessels launched prior to 1 April 1960*

Age \ Type of fisheries	Powered	Nonpowered
3-6 years	82	27
6-10 "	61	20
10-15 "	44	15
15 years and over	36	12

SOURCE: Circular note issued in March 1963 by the director of the Fisheries Agency, Government of Japan.

TABLE 4. – LOSS RATIOS[1] FOR USUAL HAZARDS OF COMMERCIAL FISHING VESSELS, GENERAL LOSS INSURANCE, FISCAL YEARS 1951 TO 1960

Year	Non-powered vessels	Powered vessels							
		0-4.9T	5-19T	20-49T	50-99T	100-999T (average)	Breakdown		
							100-199T	200-499T	500T
1951	5.90	5.44	4.55	2.29	2.39	2.31	2.81	1.45	1.48
1952	2.11	2.89	3.72	3.32	2.61	3.58	5.38	0.68	0.55
1953	3.53	4.61	4.20	2.49	2.66	1.05	1.42	0.62	0.69
1954	4.93	4.57	6.36	4.52	2.33	0.96	1.48	0.55	0.37
1955	4.73	3.68	4.77	2.99	2.01	2.05	3.99	0.44	0.39
1956	3.76	3.29	4.59	3.25	2.18	1.82	1.69	1.47	5.02
1957	3.29	2.80	4.65	2.78	2.30	0.90	1.62	0.35	0.24
1958	3.75	3.08	4.87	2.56	1.64	2.13	3.04	1.64	0.45
1959	5.35	3.94	5.44	2.99	2.37	1.73	2.85	1.05	0.64
1960	3.40	2.82	4.53	2.67	2.58	1.12	2.27	0.59	0.39
Average	4.04	3.44	4.84	2.94	2.26	1.55	2.50	0.88	0.84

SOURCE: Fishing Vessels Insurance Section, Fisheries Agency, Government of Japan.

[1] Represent loss payments per 100 yen of insurance amount.

TABLE 5. – STATEMENT OF RECEIPTS AND PAYMENTS FOR GENERAL LOSS AND MATURITY INSURANCE, FISCAL YEARS 1957 TO 1963

Item	1957	1958	1959	1960	1961	1962[1]	1963[1]
	Thousand yen						
RECEIPTS							
Reinsurance premiums							
Loss insurance	1 066 524	1 133 566	1 296 615	1 443 239	1 741 478	1 455 850	1 877 533
National Treasury's subsidy	375 610	418 859	466 707	501 569	568 575	569 155	626 127
Interest	34 022	57 073	79 692	89 933	112 985	116 776	120 000
Abandonment	15 362	25 954	6 384	29 817	23 127	30 000	30 000
Other income	2 151	4 546	5 364	3 868	8 085	100	100
Maturity insurance reserve, transferred	117 405	142 782	193 733	237 003	180 425	205 388	254 585
Unexpired reinsurance premiums, transferred	562 664	667 002	776 574	894 582	1 012 023	1 265 807	952 353
Total	2 173 738	2 449 782	2 825 069	3 200 011	3 646 698	3 643 076	3 860 698
PAYMENTS							
Reinsurance money paid							
Loss insurance	866 301	1 143 083	1 506 294	1 704 662	1 868 898	1 790 761	2 172 789
Reinsurance premiums paid back	54 532	37 291	45 840	37 560	53 133	57 087	69 337
Grant insurance premiums	30 711	0	0	0	0	0	0
Fishing boat insurance promotion expense	0	0	0	6 693	4 799	18 742	18 775
Accident prevention bounty	0	0	0	0	0	15 000	9 000
Maturity insurance reserve fund	142 782	193 733	237 003	180 425	205 388	254 585	301 674
Unexpired reinsurance premiums carried over	667 002	776 574	894 582	1 012 023	1 265 807	952 353	1 177 741
Surplus (1963)	412 410	299 102	141 351	258 647	248 673	554 548	111 382
Total	2 173 738	2 449 783	2 825 070	3 200 010	3 646 698	3 643 076	3 860 698

SOURCE: Fishing Vessels Insurance Section, Fisheries Agency, 1963 budget, Government of Japan.

[1] Preliminary for 1962 and budgetary for 1963.

3. THE TWO NATIONAL SYSTEMS AND SOME GUIDELINES FOR INSURANCE CO-OPERATIVES

by Chris A. Theodore *

What can we learn from the experience of the Norwegian and Japanese insurance co-operative systems which may be of practical use? Is it something that each scheme can offer which may be of value to the other? More important, can our analysis of the two systems help us to draw up a few guidelines which may be of interest to similar insurance co-operative systems in other countries?

Naturally, it would have been desirable to have at our disposal more information than is at present available, in which case our analysis would have been more extensive, less speculative, and perhaps more authoritative. Nevertheless, the preceding chapters on the insurance co-operative movement in two leading fishing nations of the world are worth our attention. They are sufficiently informative and self-contained for a short commentary along the lines suggested by the above questions.

In order to serve the practical objectives of this handbook we shall do the following. Firstly, we shall make a comparative analysis of certain aspects of the Norwegian and Japanese insurance co-operative movements. Secondly, we shall examine closely the actuarial mechanism of the two systems. Finally, on the basis of this comparative analysis, we shall arrive at a few conclusions which may be used advantageously as guidelines for the formation and efficient management of insurance co-operatives.

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* The author's experience with insurance problems of fishing vessels dates back to the 1950s. Cf. *Hull insurance and protection and indemnity insurance of commercial fishing vessels* (in collaboration with Warner C. Danforth). United States Department of the Interior, Special Scientific Report – Fisheries No. 241, 1957, p. 337. Most of the work for this handbook was done while on appointment at the Economic Research Center and the College of Business Administration, University of Hawaii, United States, 1964/65.

Comparison between the Norwegian and Japanese systems

In reading the preceding chapters, it has been seen that the two insurance co-operative movements were conditioned by a number of physical, economic, administrative and general institutional forces or factors. Some of these conditions contributed to the establishment, growth and success of the systems; and others inhibited and even checked such growth. In this section, we shall discuss a number of these forces and factors by comparing the two systems under the following headings: the role of the national governments, the objectives of each system, important controls and safeguards, and the nature of the difficulties encountered. We shall confine our analysis to the nonactuarial aspects of the two systems; their actuarial mechanism will be the subject matter of the following section.

Evidently, there are important, and in some respects striking differences with regard to the role which the national governments played in the establishment of the two schemes. The Norwegian system is largely the result of evolution. The mutual insurance societies were the product of private initiative. Norwegian fishermen recognized very early that an effective way of protecting their property against the special and severe hazards of the sea was to organize and share the losses as well as reap the benefits of the collective venture. By contrast, the Japanese system seems to have been imposed from above. Special legislation provided for the establishment of independent insurance associations. Their formation was the result of national policy rather than of private initiative. This statement is not meant to imply that the co-operative spirit is absent among Japanese fishermen. It is obvious, however, that such a spirit was not sufficiently motivating to become institutionalized in a formal organization.

Closely connected with the above differences is the extent to which the national governments are involved in the internal operations of their respective systems. From the financial standpoint, the Norwegian system is virtually independent. It receives neither premium nor administrative subsidies. The only significant financial aid which the system received were the initial funds for the establishment of the reinsurance institutes. Furthermore, the state's obligation is limited to that initial financial commitment. Parallel to this financial independence, the Norwegian system enjoys substantial administrative freedom. Within broadly prescribed rules, both the societies and the reinsurance institutes act as independent insurers free to negotiate the terms of their insurance contracts. In substance, from the

financial and the administrative standpoints, the involvement of the Norwegian Government is limited and largely supervisory.

This is not the case with the Japanese system. The national government subsidizes both premiums and administrative expenses for the propagation and promotion of the system. In addition, this financial aid seems to be experiential, i.e., it depends on the operational deficit which the system may experience each year rather than on a predetermined legal limit. Nor does the Japanese system enjoy the administrative freedom of the Norwegian counterpart. Although the insurance associations have some freedom in determining the insurance amount and other items of their contracts, this is done within the actuarial standards established and controlled by the central government under the immediate supervision of the Central Society. The same is true of the Special Reinsurance Account (SRA). In contrast with the functions performed by the reinsurance institutes of the Norwegian system, SRA was established to trace the flow of funds through the system as a separate function from the budget of the Fisheries Agency. Thus, the administrative involvement of the Japanese Government seems to be directly proportional to the financial assistance received by the system.

In spite of these differences, there is one similarity between the Norwegian and Japanese insurance co-operative systems which, for the present purpose, seems to be equally important. Neither the independent societies in Norway nor the independent associations in Japan have been capable of creating on their own initiative the actuarial reinsurance mechanism which would have enabled them to diversify their risks. It is highly significant that in both cases such an actuarial mechanism was created with governmental initiative;[1] also, it is equally significant that the creation of this mechanism signaled the establishment of the insurance co-operative movement as a system in both countries.

It can thus be seen that the two countries went about establishing their respective national systems of insurance co-operatives for fishing vessels in almost diametrically opposed ways. Employment of different means can be largely attributed to different cultural and institutional environments.

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[1] This statement is further substantiated by the experience in Iceland, where the first reinsurance institute, called Samabyrgd Islands a Fiskiskipum (Icelandic Fishing Vessels Insurance Institute), was a state-sponsored undertaking. FAO. *Mutual and co-operative insurance for fishing vessels in Iceland.* Rome, 1964. (unpublished paper)

Also, it is interesting that efforts to establish a reinsurance institute by private initiative has been largely unsuccessful elsewhere. *Cf.* H. Wichr. *The insurance system for the coastal and small deep-sea fisheries (cutter fishery) in the German Federal Republic.* Rome, FAO, Technical Meeting of Fishery Co-operatives, 1959.

But it can also be attributed, at least to some extent, to the different objectives which each system is designed to serve.

The Norwegian system seems to have purely insurance objectives, namely, to afford to fishermen maximum protection against the hazards of the sea at a minimum cost. By contrast, the objectives of the Japanese system are much broader than those in Norway in two respects. In the first place, the ultimate aim of the system in Japan seems to be insurance protection for all, or nearly all, vessels of less than 1,000 gross tons. Furthermore, the system provides special incentives through compulsory affiliation for insurance of small vessels, including nonpowered ones which, under ordinary circumstances are not, or could not, be insured. In the second place, coverage is not limited to protection against the ordinary hazards of the sea. The system provides for maturity insurance as a means of encouraging the accumulation of savings to replace depreciated vessels. In addition, it offers seizure insurance of vessel and crew, which represents protection against nonphysical hazards at sea. Thus, the Japanese system seems to have been designed to serve broad national goals which go beyond the purely insurance objectives of the system in Norway.

A comparison of the controls and safeguards for the proper functioning of the two systems may be made with respect to administrative supervision, the handling of risks, and the importance of the human element. Both systems seem to have established elaborate supervisory rules for a sound financial administration of their insurers, i.e., societies or associations. Whatever important differences exist in this respect seem to be related to the participation procedure of the vessel owners in each system. Since formation of new societies or the merger of existing ones is a matter of private initiative, the Insurance Council in Norway is authorized to approve and supervise their formation and dissolution. In the Japanese case, however, the associations seem to be legally established administrative units; their number can be changed only by new legislation. While the governor of the prefecture, where the association's central office is located, is largely responsible for determining membership affiliation, financial and general administrative supervision rests (in the established system of checks and balances) with the Central Society, the Ministry of Agriculture and Forestry, and the Treasury of the central government.

Both systems have established elaborate rules prescribing the procedure which should be followed in the assessment of risks as well as in the settlement of claims. There is a significant difference, however, between the two systems with respect to the locus of authority for the enforcement of these

rules. As pointed out earlier, in the Norwegian system this authority seems to rest almost entirely with the societies; in spite of the fact that the reinsurance institutes appear as coinsurers of the risks, the societies act as independent insurers; furthermore, the reinsurance institutes do not seem to have any important direct supervisory capacity over the actuarial practices of the societies. Checks and balances seem to be automatic through the surpluses or deficits which the societies experience with the reinsurance institutes from within and the competition of private insurers from without. On the other hand, in the Japanese system the locus of authority for implementing these rules is shared by the Central Society and the associations. Although the associations may receive rewards and penalties for their insurance practices, they handle their risks within detailed actuarial standards prescribed by law.

It can be seen that the greater independence of Norwegian societies compared with the Japanese associations is consistent with the extent of government involvement. Such a difference, however, seems to be consistent also with the role which the human element is expected to play in the two systems.

Both countries are proud, and rightly so, of their fishermen's experience and age-old tradition in one of the oldest and toughest professions in the world; they are expert fishermen and skillful navigators. In this respect, the human element is an inestimable asset to both systems: fishing is not likely to be looked upon as a pastime or temporary source of livelihood but as a full-time, lifelong commitment; vessels are likely to be properly equipped and seaworthy; and the incidence of accidents due to incompetence, ignorance and negligence is probably kept to a minimum.

Nevertheless, the Norwegian system is based on the recognition that fishermen are in a position to appreciate the benefits of insurance protection through independent collective action. Such recognition does not seem to be accorded to the fishermen of Japan. Thus, the insurance practices of the associations are closely controlled and supervised by the central government, Central Society, and other supervisory agencies; special emphasis is placed on educational compaigns designed to disseminate sound insurance principles and better understanding of the benefits which fishermen may enjoy from mutual insurance; the rather remote and almost impersonal connection of insured vessel owners with their association and its probable adverse effects on the insurability of risks is well recognized; and the importance of local co-operatives in providing membership channels and informal safeguards for the insurability of risks is repeatedly mentioned.

A few of the most serious difficulties and problems which the two systems encounter today stem from their actuarial practices, which will be discussed later. Here, it might be worthwhile to approach the problems of membership and operational costs.

Evidently, there are no serious cultural or attitudinal barriers to membership in the Norwegian system. Since participation is strictly voluntary, however, the only important inducement to vessel owners is favorable insurance terms. Thus, the growth in membership and insurance amount has been checked by forces which lie outside rather than inside the system, namely, the keen competition of private underwriters. By contrast, although the Japanese system has encountered some competition from private insurers, the most serious factor inhibiting its growth lies within the system, that is, the relatively strict conditions for compulsory affiliation. Of course, the seriousness of the membership problem is relative to the objectives of the Japanese system. Since the system is designed to offer extensive insurance protection to all small boats, and since only a small percentage of such vessels seem to carry insurance, one wonders how serious the problem might be if the ambitious objectives of the system were curtailed.

Of considerable interest is the experience which the insurers of the two systems have had with administrative or operational costs. It seems that the system in Norway operates at a lower cost than that in Japan. In the first place, much of the detailed work of the Norwegian societies seems to be done by the insured members on a voluntary basis. This is in spite of the fact that consolidation of small societies into large ones was accomplished with rising costs of operation. By comparison, the Japanese associations seem to be large administrative units operating on an impersonal basis. Their contacts with the insured vessel owners are not usually direct but made through the local co-operatives. In the second place, the relative independence of the Norwegian system is likely to keep operating costs at a minimum. The functions of the Insurance Council are largely supervisory; premium rates are usually uniform; and the reinsurance institutes do not seem to be burdened with the compilation of elaborate actuarial statistics. On the other hand, operating costs in the Japanese system are apt to be relatively high. The functions of the Central Society are not supervisory only but also regulatory; the system provides for educational campaigns regarding safety and other matters; and the determination and recording of insurance and reinsurance premiums is elaborate and time-consuming.

In addition, the experience of the Japanese system supplies us with other interesting observations on operational costs. It was found that associations

with a large area and a great number of small vessels have heavier operational costs per premium dollar than associations with a small area and a few but large vessels. We shall explain after in what respect this relationship of operational costs to the size of the risk and the geographical area of the insurer is important from the actuarial standpoint.

An actuarial model and the two national systems

The primary, if not the exclusive, objective of an insurance co-operative system is to give its member vessel owners the maximum protection at the lowest possible premium. How efficiently have the Norwegian and Japanese systems managed to accomplish this objective? In order to make such an evaluation, we shall first establish the characteristics of an actuarial model, then compare the actuarial mechanism of each system with this model. In the course of this evaluation, it will be possible to point out the benefits which one system may derive from the experience of the other.

A perfectly functioning actuarial model has three important properties: the risks of the model are *insurable;* they are *differentiated* with regard to the expectation of loss; and, finally, the model functions in accordance with the *law of averages.*

In an ideal model, the risks are insurable because losses occur at random. In order to understand randomness as well as the mechanics of the model, we shall introduce the following experiment as an example. Imagine a big urn with a very large number of balls in it. The balls are identical and thoroughly mixed. Each ball represents an insured vessel. If a ball is randomly selected from the urn, then a loss occurs to the vessel which the ball represents. When we say that a ball is selected at random or randomly, we mean that one ball is as likely to be selected as another; in other words, there is no reason to believe that one ball is likely to be selected more frequently than another.

Naturally, the above experiment represents a highly simplified description of the real world; and in due time we shall introduce additional qualifications in our experiment in order to make it more realistic. At this point, however, the above experiment can help us understand clearly the meaning of risk insurability. Like the experiment, in our ideal model, losses occur at random since we have no reason to believe that such losses are attributable to assignable nonrandom causes. Normal wear and tear of vessel, equipment and gear, for example, are assignable causes; so are gross negli-

gence and moral hazard, i.e., willful and deliberate destruction of insured property for the purpose of collecting insurance benefits; also, with certain qualifications to be explained later, severe natural disasters may be considered to fall into this category of causes. Partial or total losses which can be attributed to such assignable nonrandom causes are not insurable. In short, our model contains the purely insurable part of a risk only.

The first question which can immediately be raised is: Why are some parts of a risk not insurable? Certain losses attributable to nonrandom causes, such as wear and tear, occur with certainty and a high degree of regularity, year in and year out; other losses, such as those due to moral hazard and great national disasters, are unexpected and very heavy. In the former case, payment of a premium becomes prepayment of depreciated property, while in the latter case, the insurance contract becomes a wager.

The second question which can be raised is: How does our model differentiate between the insurable and the noninsurable parts of a risk? With respect to total losses, the insurance policies of the model provide for indemnification of the insured for an amount which is below the current market value of the risk. The difference is a loss which must be borne by the insured. With respect to partial losses, the insurance policies of the model include deductible or franchise clauses. A deductible clause specifies that a fixed sum is to be deducted from the assessed value of a legitimate claim of a policyholder. In the case of a franchise clause, the insured receives the entire assessed value of a legitimate claim if that value exceeds the specified deductible sum; otherwise, he receives no payment. In all cases, the provided sums are *perfect discriminants* for distinguishing between the insurable and noninsurable parts of a risk, so that only the former are insured by the model.

So far, we have assumed that the insurable risks of the model are homogeneous. Thus, the expected loss, i.e., the expected value of the risk which is the product of the insurance amount at stake and the probability of loss, is the same for each insured risk. In fact, the expected loss determines the premium rate and the obligations which the insurer assumes. The higher the expected loss, the higher the insurance rate or the smaller the coverage; and the lower the expected loss, the lower the rate or the higher the coverage.

Actually, the insurable risks of the model are not homogeneous. The probability of loss occurrence varies from vessel to vessel depending on physical as well as human characteristics of the risk, such as age, gross tonnage, seaworthiness, type of fishing, quality of officer personnel and crew,

etc. Our perfectly functioning model is capable of sufficiently differentiating between heterogeneous insurable risks by using a scale of premium rates as an index to measure the probability of loss.

We can visualize how the model would now operate by modifying the ball composition of the urn in our experiment. We can imagine that the balls in the urn are not identical. In the first place, they are colored differently where the color composition of the balls is proportional to the probability of loss occurrence from each category or stratum of the insured risks. In the second place, each ball bears a number representing the insurance amount of the risk. *Rating* of individual risks *is done automatically* through the random selection of balls. The color of the ball indicates the premium rate to be charged, while the premium amount is determined by multiplying that rate by the amount of insurance shown on the ball.

Admittedly, premium rates are higher than the probability of loss for each risk category in order to cover all operating costs. But many costs of operation are intimately related to the third important property of our model, namely, the functioning of the law of averages. Perfect functioning of the law presupposes two conditions: firstly, the volume of business is very large; and secondly, the risks are dispersed over a very wide geographical area. Both conditions are necessary for securing stability of accident occurrence. Volume of business is not a substitute for geographical dispersion. Whether or not losses attributable to severe natural disasters are considered noninsurable would depend, to some extent, on the geographical dispersion of risks rather than on their number. Other things being equal, the insurability of risks increases with greater geographical dispersion. Thus, because of randomness, risk differentiation and the law of averages, the frequency of loss occurrence in the model, although uncertain, is measurable with a small probability error.

Naturally, our model could secure the proper functioning of the law of averages by carrying a very large number of risks dispersed over a huge geographical area. This solution, however, is not realistic. The risks which each insurer in the Norwegian and Japanese systems can possibly underwrite do not meet satisfactorily the two conditions for the proper functioning of the law of averages. Furthermore, it is questionable whether such volume of business and geographical dispersion of risks is desirable for insurance co-operatives even if it were assumed to be possible. Consequently, the important advantages of control through personal local contacts may be quickly lost and operational costs for the acquisition, supervision and handling of risks may rapidly mount as the risks become more numerous

and more widely dispersed.[2] Thus, our model provides for the reinsurance of risks. This solution permits the individual risk carriers to obtain the benefits of the law of averages through reinsurance while retaining the advantages associated with small size.

It is important to realize that, so far, our perfectly functioning model represents an ideal situation and it is time now to introduce additional qualifications. In reality, no actuarial mechanism is capable of clearly distinguishing between the insurable and noninsurable parts of a risk. Such parts are indistinguishable. Therefore, the deductibles for total or partial loss are not and cannot be perfect discriminants. No matter how imperfect discriminants may be, however, they may perform their function to a satisfactory degree. In the case of partial losses, deductibles or franchises may eliminate the portion of the risk which is likely to be noninsurable. Furthermore, in both total or partial loss, deductibles force the insured vessel owner to bear part of the risk personally and hence make him more conscious of his responsibilities than he otherwise might have been. Nor can rating of individual risks be automatic, for the uncertainty in the occurrence of accidents cannot be eliminated – but it can be reduced by predicting the future on the basis of past experience. Thus, rating of risks in our model is done on the basis of actuarial statistics compiled from past experience. With the above qualifications, our model becomes a standard with which it may be worthwhile to compare the actuarial mechanism of the Norwegian and Japanese systems of insurance co-operatives.

With respect to risk insurability, neither the Norwegian nor the Japanese system seems to be up to the standards of our model. It is true that the deductibles for partial losses in Norway seem to eliminate satisfactorily the part of the risk which is likely to be attributed to normal wear and tear in most cases. Noteworthy is the experience with insurance for fishing gear in sea where coverage is given to the winter herring fishery only and limited to specifically mentioned causes with a deductible representing 20 percent of the insurance. Equally noteworthy is the fact that insurance of trawls in sea have proved to be a noninsurable risk.[3] On the other hand, financial developments and competition of the Norwegian system with private insur-

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[2] *Cf.* previous discussion on present difficulties of the Japanese system. Also, see John Thomson, *Cooperative insurance for fishing vessels in England and Wales.* Rome, FAO. Technical Meeting of Fishery Co-operatives, 1959.

[3] See similar disappointing experience with insurance of lobster traps in Canada. I.S. McArthur, Small boat and gear insurance for Canadian fishermen, *FAO Fisheries Bulletin*, Vol. VIII, No. 2, April-June 1955, p. 8-11.

ers have almost completely eliminated similar deductible safeguards for total loss. Most vessels, especially newly built ones, seem to be insured at 100 percent market value. From the strictly actuarial standpoint, the societies of the system seem to underwrite the portion of a risk which, according to our standard model, is classified as noninsurable. From the general insurance viewpoint, this situation may, in the long run, undermine sound and long-established insurance practices. Both developments seem to be undesirable.

By contrast, the Japanese system appears to provide sufficient deductible safeguards for cases of total loss. Although the insurance ratio, i.e., the ratio of insurance amount to market value has steadily increased over time, for most vessel categories it is safely below the 100 percent level. However, the system does not seem to provide for deductibles on partial losses unless the standard lists for repair claims approved by the central government are set at levels which automatically provide for such safeguards. If the standard repair lists do not make such provisions, then it is likely that the system covers portions of a risk which under the standards of our actuarial model should be considered noninsurable. This may at least partially explain why actual loss ratios of small vessels are much higher than those of large vessels. In fact, one wonders whether some, if not all, premium subsidies are necessary because the system covers noninsurable portions of its risks. If the standard repair lists do take into account deductibles, then the expected benefits for making the insured feel that he is shouldering part of the risk is lost; still worse, this practice may reinforce the insured's false notion that the payment of a premium is a mere prepayment of his repair bills. Thus, this practice seems to be in conflict with the efforts of the system to imbue sound insurance principles among the Japanese fishermen.

Probable lack of deductibles on partial losses in the Japanese system does not seem to be the only case involving noninsurable risks. On the basis of the standards of our actuarial model the risks covered under seizure insurance should be considered to a large extent noninsurable, while the portion of maturity insurance other than general loss seems to represent forced savings. Noninsurability of risks can be largely explained by the broad national goals of the Japanese system. By contrast, the noninsurable risks of the Norwegian system seem to stem from the stresses and strains caused by financial developments and the keen competition of private underwriters.

Risk differentiation, the second property of our model, seems to fall far short of the standard in the Norwegian system. Of course, there are historical reasons which explain the widely practiced uniform premium rates,

for the co-operative spirit which was the primary moving force for the establishment of independent insurance societies in Norway included the principle of mutual aid. Accordingly, uniform premium rates were consistent with the philosophy of the first societies. Now, in the light of increasing sophistication in the insurance business, uniform premium rate practices are rapidly becoming an insurance anachronism. More serious than this is the fact that with uniform premium rates the Norwegian system is increasingly becoming vulnerable to the strong competition from private risk carriers.

The sophisticated actuarial tables of the Central Society seem to place the Japanese system close to the standards of risk differentiability established in our model. Yet, the adjustment of premium rates in favor of small vessels and at the expense of large ones must be considered as a serious departure from the model's standard of risk differentiability. Naturally, it can be justified on the basis of mutual aid; and it can be explained as serving the broad noninsurance goals of the system. At the same time, however, we have seen that it opens opportunities for private underwriters to make a favorable selection of risks at the expense of the system.

By comparison, neither the Norwegian nor the Japanese system seems to have an unsatisfactory reinsurance mechanism. The volume of business and geographical dispersion appear to be sufficient in both systems for a satisfactory functioning of the law of averages.

In sum, both systems could improve their actuarial mechanism with respect to risk insurability and differentiation. In fact, each system may profit from the experience and the difficulties of the other in matters such as deductibles and the determination of premium rates.

Some guidelines for the formation of insurance co-operatives

The above analytical comparison of the Norwegian and Japanese systems offers us a few insights in discussing the establishment of insurance co-operatives. After explaining why co-operatives are the most desirable and natural forms of insurance organization, attention will be focused on the following: (*a*) matters pertaining to certain administrative aspects for forming insurance co-operatives; and (*b*) various forms of government assistance for such a purpose. Other matters related to the establishment of a system of insurance co-operatives, however, will only be discussed incidentally, while the actuarial aspects of sound management will be the subject of our last topic.

As shown in country studies, there are a number of important reasons why fishermen resort to the formation of insurance co-operatives to obtain insurance protection. If one were to list difficult property risks such as residential housing, office buildings, factories, warehouses, passenger ships, freighters, etc., starting from the risk with the highest premium rates, commercial fishing vessels are likely to be on top or near the top of such a list. Fishing vessels operate under the most hazardous conditions; hazards at sea are subject to sudden changes; and the risks are mobile, making proper supervision and control difficult and frequently impossible. On the other hand, vessel owners with limited financial resources can least afford losses; but also, they can least afford the perennial financial drain of large premiums. Furthermore, such a drain is not only continuous but quite burdensome. Even allowing for tie-up credits (to be discussed later) insurance premiums represent fixed costs for fishing operations. They must be paid in advance, while the revenue from fish landings depends on an uncertain catch and perhaps more uncertain fish prices. Thus, forming an insurance co-operative which could make available the best insurance protection at the lowest possible cost is highly desirable.

In addition, a co-operative seems to be the most natural form of insurance organization for fishermen. It is beyond any question of doubt that the human element is a very important factor for the success of any insurance scheme for fishing vessels; and there seems to be no other more effective method of supervision and control of risks at sea than a co-operative venture. It provides for maximum self-supervision through local everyday personal contacts.

But the fact that a co-operative may be the most desirable and natural form of insurance organization for fishermen does not necessarily secure its success easily. The establishment of an insurance co-operative must be planned very carefully. The specific course of action to be taken and the kind of organizational setup that needs to be established for founding an insurance co-operative depend on the prevailing conditions in each country. Such matters may be largely determined by the importance of the fishing industry in each country's economy, national goals and policies, legal provisions and administrative regulations. In this respect no generalizations can be made. On the other hand, there are a number of guidelines which, if followed wherever possible, and wisely, may appreciably enhance the chances for the successful establishment of insurance co-operatives:

1. Since the human element is a very important factor in the success of an insurance co-operative, every effort should be made to secure maximum co-operation of the fishermen by utilizing existing formal or informal social groups. For example, the fishermen may already have their own supply or marketing co-operatives, in which case the establishment of an insurance co-operative would be considerably facilitated, since the fishermen would already be familiar with basic co-operative principles and methods. A geographical area may contain different national, racial, or religious groups of fishermen. In such case, it may be wiser for each group to have its own co-operative. It is possible that a geographical area may contain cultural subgroups of fishermen such as clans, sects, or tribes. The co-operative, in such instance, may be organized so that the leaders of the subgroups actively participate in the foundation and management of the co-operative. It is important to remember that the disadvantages of a small volume of business and lack of sufficient geographical diversification can be largely offset through reinsurance.

2. At the beginning, membership may be limited to vessel owners who are skippers or are actively engaged in some important activity of the fishing industry. If absentee ownership is widely practiced, it may be advisable, at least initially, to exclude absentee owners from membership with the co-operative, or make suitable provision to limit this influence.

3. The best-run insurance co-operative need not be the biggest; and the most economical size for an insurance co-operative remains to be determined.[4] Operational costs and frequency of loss depend on many variables such as business volume, geographical dispersion, size of vessels, type of fishing, insurance coverage, service, human attitudes, and others. However, in view of the unusual character of insurance for fishing vessels, expected benefits from larger business volume and greater geographical dispersion of risks may be sacrificed, at least initially, if such a sacrifice results in a co-operative consisting of a smaller but more cohesive and homogeneous group of fishermen. If geographical dispersion of risks cannot be avoided, or if it does not seriously affect group homogeneity, then efforts may be made so that the organizational setup of the co-operative provides for a mechanism which permits close supervision of its members in each port or locality. One such mechanism, for example, may

[4] D. Landin, The Folksam Group, Stockholm. *Economic size of an insurance co-operative society.* (unpublished paper)

be to divide the geographical area of the co-operative into districts. Each district may be represented by a number of elected directors who will form the board of directors of the co-operative.

4. The promotional efforts involved in founding an insurance co-operative depend on prevailing local conditions, such as the level of literacy of the prospective members, their attitudes, kind of local leadership, the economic state of the fisheries, the interest of the government and local authorities, etc. Whatever the means may be, however, they may be designed to answer a number of questions such as the following: What is an insurance co-operative? How does such a co-operative work? What benefits does a member expect to get from an insurance co-operative? What are a member's obligations?

5. The above questions should be discussed in a series of meetings preceding the founding meeting, the primary purpose of which would be to discuss and approve the by-laws of the insurance co-operative. Since the by-laws are the constitutions of the co-operative, they must be drafted with great care. Whatever their composition they must meet the legal requirements of the laws of the country and provide in detail the rules under which the co-operative should be managed. The procedure which is required for establishing an insurance co-operative as a legal entity, of course, differs in each country; also, the rules of the by-laws are the result of a collective agreement reached by the members of a co-operative. Nevertheless, it is important for the by-laws to contain certain provisions which may be vital for the proper functioning of the co-operative. Thus, they may specify the following; the conditions under which a vessel owner can become a member and remain a member of the co-operative in good standing; voting rights; when meetings are to be held and how they are to be conducted; the method of electing board members and officers, as well as their authority and responsibilities; the procedure for determining insurance and reinsurance rates, refunds and dividends; financial matters such as accumulation and handling of reserves, bonding of officers, auditing of accounts and the distribution of any reserve funds in case of dissolution; the procedure for the assessment of risks and the settlement of claims and disputes. A sample of such by-laws and an appended sample of a hull insurance policy and renewal certificate make up Chapter 4 of this monograph. This sample of by-laws was deliberately selected, firstly, because it contains very detailed rules; and secondly, because the co-oper-

ative which has used them has had an unbroken record of successful operation for over two decades. It is hoped that the detailed rules may be of help to a large number of readers.

6. Among other matters, the co-operative can supply its members with a booklet containing the approved by-laws. Such a booklet, however, may contain additional information which would be of interest and help to the insured vessel owners. For example, it may contain a short history of the co-operative, the names of the board members and officers currently in office, the geographical area of the co-operative, the conditions under which a vessel is qualified for insurance, the kind of insurance protection the co-operative offers, how much premium must be paid, trading warranty specifying the waters which the insured vessels may navigate under insurance protection, a list of rules specifying the conditions under which claims may be paid, and the procedure for filing a claim.

7. More frequently than not, the founding members may discover that establishing and managing an insurance co-operative is rather complicated. It may be desirable, and certainly wise, to seek expert financial, legal and insurance advice in order to prevent time-consuming and costly complications at a later date.

The last suggestion raises the following question: How can the government assist the establishment and proper operation of insurance co-operatives? The extent and nature of such assistance is largely a matter of national policy. It may range from very little help, as in the Norwegian case, to outright administrative and premium subsidies, as in the Japanese case. In fact, the situations in Norway and Japan give us an idea of what can be accomplished by different approaches with respect to governmental assistance, supervision and control. However, if the purely insurance objectives of a co-operative movement are to be served, such governmental aid may be given to areas where absence of it may mean complete failure or a serious setback of the movement. A few general suggestions follow:

1. Frequently, fishermen have neither the specialized knowledge nor the financial resources to obtain the expert advice which is necessary for setting up and managing an insurance co-operative. Such assistance may be given in the form of an educational program designed to (*a*) foster and encourage co-operation among vessel owners by emphasizing the benefits which such co-operation would bring in the establishment of an insurance scheme;

(*b*) disseminate information on the fundamentals of insurance protection; (*c*) provide expert legal, insurance and financial advice for the organization of an insurance co-operative; and (*d*) offer special training in the management of insurance co-operatives.

2. Another valuable assistance to insurance co-operatives may be the establishment of a central agency for the systematic compilation of actuarial statistics. Such a service would be valuable to the insurance co-operatives in (*a*) reducing the bookkeeping cost; (*b*) acting as a clearinghouse for the rating of risks; (*c*) improving the insurability of risks; and (*d*) helping in the establishment of differential premium rates.

3. We have already pointed out that an insurance co-operative cannot possibly obtain the business volume and the geographical dispersion of its risks for the proper functioning of the law of averages. In fact, it has been said that even if that were possible, it could hardly be desirable. Thus, we concluded that the solution is the establishment of a reinsurance institute. It seems that this can be done only through the initiative of the government, which will put up the required reserves for the establishment of such an institute. Also, the suggested central statistical agency may be part of the reinsurance institute. In fact, the volume of data flow from the two agencies may be sufficient for computerized operations.

The above measures may be considered sufficient for the establishment of a national system of insurance co-operatives in one country and quite inadequate in another. The method of implementing measures such as those suggested will depend largely on the institutional setup of each country, while the extent of governmental assistance is mainly a matter of national policy.

Actuarial aspects of sound management

An insurance co-operative is a joint venture, with the ultimate objective of offering to its members maximum protection against the hazards of the sea at a minimum cost. In order to achieve this objective the management of a co-operative must be concerned with four major aspects of its operations: (*i*) premiums paid by the insured, which determine the inflow of funds; (*ii*) insurance coverage, which determines the scope of the obligations assumed by the co-operative; (*iii*) safety standards, which are de-

signed to reduce the frequency and severity of loss; (*iv*) operating costs which, together with loss payments, determine the outflow of funds. [5]

In operating an insurance co-operative, are there any general guides which may help management to maximize insurance protection and minimize insurance cost to the insured vessel owners? We shall attempt to answer this question by suggesting a number of sound insurance practices.

The financial obligation of the insured vessel owners consists of the annual payment of premiums. This inflow of funds must be sufficient to cover the losses and operating expenses of the co-operative and allow for the accumulation of reserves. Since the paid premiums are determined on the basis of fixed premium rates, and the insurance in force, the problem is how to relate premium rates, insurance amounts and reserves so that the financial burden to the insured is in proportion to the determinable quality of his insured risk. This means that management should strive, as far as possible, to differentiate the risks of the co-operative. The following suggestions may help the latter to achieve this objective:

1. Unless the fleet of insured vessels is a fairly homogeneous one with respect to physical characteristics such as size, age, type of fishing, etc., premium rates should not be uniform. However, it may not be possible nor prudent for the management of the co-operative to charge varying premium rates during the first few years of operation. Available actuarial statistics from outside sources may be neither sufficient nor reliable. Still, more important than this is the fact that the majority of vessel owners may be unable to understand the actuarial functions of their co-operative except on the basis of the principle of mutual aid; varying premium rates, therefore, may be considered unfair and arbitrary without sufficient evidence based on past experience of the co-operative. At any rate, uniform premium rates may be maintained until the required general reserve fund is accumulated. But as soon as such reserves have been accumulated and actuarial experience justifies it, premium rates may be varied on the basis of this experience with respect to important variables such as size, age, material of hull and type of fishing. Stratification of the insured fleet on the basis of variables which experience shows to be sufficient discriminants of risk is a sound application of the principle of risk differentiation; it may prove to be the most effective, and perhaps the only effective protec-

[5] A few of the restrictions on coverage and most of the safety rules contained here can be found in a booklet entitled *Pacific coast fishermen's mutual marine insurance*. Vancouver, British Columbia, Canada, 1965.

tion against favorable selection of the risks by competing private insurance carriers.

2. If possible, it may be worthwhile to avoid payment of supplementary premiums; they may create several undesirable complications and certainly higher operational costs. Thus, premium rates may be set between 50 to 100 percent higher, depending on the conditions of the particular situation, than the rates required to meet expected losses, operating expenses and the accumulation of reserves.

3. Unless otherwise specified by law, the reserve fund of the co-operative may be set at a level representing between 10 to 15 percent of the annual average insurance in force for the past two to three years. No refunds may be made or bonuses given unless the reserves meet the set level. Flexibility may be introduced into the system of reserves by establishing two funds, the general reserve as explained above, and a revolving reserve on a five-year basis (*cf.* sample of by-laws, Chapter 4).

4. Additional reserve funds may be obtained with the issuance of guarantee stock. Each member of the co-operative may be required to purchase shares on the basis of the amount of insurance carried. Such guarantee stock may be issued at the time the co-operative is established, in order to build up reserves quickly, or it may be issued later to meet unusual or nonrecurring expenses or obligations of the co-operative. (For further information on guarantee stock see sample of by-laws, Chapter 4).

5. If possible, renewal of contracts may be set at periods of the year which are most advantageous for the payment of premiums, such as the end of a fishing season rather than the end of the calendar year (see Chapter 4 for additional information on premiums).

6. Refunds or dividends may be made in such a way as to serve better risk differentiation and reward good risks. For example, as much as one third of the refunds may be distributed among the vessel owners, representing 10 percent of the insured with the best record relative to accidents for a number of years. Then the rest of the surplus may be distributed among all insured in proportion to the net premium earned by the co-operative out of the premium paid by the insured.

The cost of insurance protection to the vessel owner should not be measured in terms of the paid premium only. At least equally important is the insurance coverage which the vessel owner buys with this premium. For a given premium, the greater the insurance coverage the less the cost of insurance. Hence, the insurance coverage which the co-operative may assume should be carefully defined in terms of type of insurance, insurance in force and reinsurance provisions, deductible clause, other restrictions or rules under which the insured may or may not be indemnified, trading warranty, and a provision for tie-up funds. Restrictions or conditions such as these limit the extent of the liability which the co-operative assumes, eliminate as much as possible the noninsurable portion of the assumed risks, and strengthen the financial position of the co-operative.

In this connection, attention should be paid to the following:

1. Initially, insurance protection should be limited to an ordinary hull policy which covers the hull, engine, machinery and equipment on board the vessel. Insurance protection may be extended to other types of insurance after the management gains more experience and the co-operative becomes financially strengthened, such as third-party liability and fishing gear at sea.

2. A newly established co-operative cannot easily sustain total loss. Therefore, it may be wise to set the insurance-to-the-market-value ratio as low as the management thinks safe for the limited resources of the co-operative. Excess insurance amounts may be reinsured with outside risk carriers. In this connection, the need for a reinsurance institute cannot be overemphasized. If a risk can be reinsured at reasonable premium rates, the insurance amount may represent as much as 90 percent of the current market value of the vessel. A higher ratio would be a violation of the principle of risk insurability. As pointed out earlier, it is wise to make the vessel owner share the hazards of the sea with the co-operative.

3. If the vessel owners are not required to insure their vessels at a fixed insurance ratio, say 90 percent of the market value, then payments for partial losses may be made proportional. Thus, an insured with 90 percent insurance ratio will receive full payment of his partial loss; another insured with 70 percent insurance ratio will receive seven ninths of such payment.

4. A deductible clause may provide that a sum representing, say, 1 percent of the insurance in force but not exceeding a maximum amount,

for example, $200, must be deducted from every legitimate damage claim. Such a deductible provision is another way in which the portion of a risk not likely to be insurable may be eliminated. In addition, such a provision eliminates numerous petty claims and helps to reduce the operational cost of the co-operative. As soon as the latter establishes itself financially, the deductible provision may be changed to a franchise. Since under a franchise clause the insured receives the full loss payment if the damage exceeds the deductible sum, a change to a franchise is, in fact, an extension of coverage.

5. There are a number of other restrictions or rules which may further lower the coverage of insurance protection assumed by a co-operative:

(*a*) Loss of anchor is recognized only if the anchor gear is lost in an effort to save the vessel."

(*b*) Extreme overloading is considered gross negligence. Accidents caused by overloading are not covered.

(*c*) The insurance policy covers only the hull, machinery and equipment on board listed in the survey form at the time the owner applies for a policy. The co-operative must be notified for any new equipment added after the vessel is accepted.

(*d*) Only one skiff which is designated as the lifeboat is insured along with the vessel.

(*e*) Tying vessels together while traveling is considered gross negligence. No claims will be paid for damages resulting from such a practice.

Restrictions such as the above may appear as clauses attached to the insurance policy, or they may be introduced later as the result of experience and as resolutions at a general meeting of the co-operative. They may be considered as further attempts to eliminate the noninsurable portion of risks.

6. Another condition further restricting coverage is a trade warranty. This restriction specifies the waters which the insured vessels can navigate and be entitled to the protection specified in the policy. Sometimes vessels are protected for navigating beyond the waters specified by the warranty upon payment of an additional premium.

7. The board of directors of a co-operative may be vested with the authority to refuse claims for damages when, in the opinion of the directors, such damages are primarily the result of wear and tear. This provision may be put into effect especially when the insurance policy does not contain a deductible clause.

8. After an accident in which the propeller has hit a submerged object, the co-operative may pay the expense of inspecting the clutch and reduction gear. If the insured does not take advantage of this opportunity while repairs caused by the accident are being made, he cannot use that accident as a cause of clutch or reduction gear trouble which may develop later.

9. Finally, coverage of insurance protection is a function of time. The hazards are likely to be more numerous and more damaging when a vessel is fishing at sea than when tied up at a pier. Thus, special premium refunds may be provided at the end of the policy year for a vessel which had been tied up in excess of 30 consecutive days. Such refunds may represent as much as 40 percent of the premium for the period that the vessel was tied up. For example, if a vessel was tied up for 50 consecutive days, then the tie-up refund will be $\frac{50}{365} \times (\text{premium}) \times (0.40)$. Tie-up periods must be properly reported and credits may be given for the current policy year only.

The third important area of sound insurance management is the maintenance of safety standards. Payment of premiums is not a prepayment of repair bills, and perhaps a decisive way of imbuing this notion into the minds of the insured is for the management of a co-operative to establish rules of safety and preventive maintenance. The following represents a sample of such rules, and they are by no means exhaustive:

1. Special efforts should be made to specify clearly the conditions under which a vessel qualifies to be insured. A prospective vessel is surveyed by a director of the co-operative, or by three co-operative members, or by a specially appointed surveyor of the co-operative. In order to qualify, a vessel should be required to carry on board at least a 10-lb CO_2 fire extinguisher or its equivalent; anchors, chain and sufficient length of line; a suitable engine indicator measuring low oil pressure and high water temperature; fuel tanks vented and filled from the outside; a mechanical and hand pump, both in good working condition; running lights meeting

required standards; distress signals; and a compass properly working and adjusted. Although most, if not all, of the above requirements may be part of governmental regulations for operating a vessel, it may be desirable that such requirements be part of the conditions for insuring a vessel.

2. It is a good policy for every insured vessel to be surveyed every two or three years. Also, the provision may be made to survey a vessel after a major repair or as frequently as the board of directors thinks it necessary.

3. The board of directors may be authorized to refuse renewal of a policy if, in its collective opinion, the insured vessel has proved to be a poor risk or its owner found to be untrustworthy.

4. Each insured vessel owner should be advised that in marine accidents quick action may reduce damage, facilitate salvaging and even save a vessel. In case of an accident, the insured must report immediately any damage, actual or presumed; immediately take whatever action is necessary to safeguard his vessel and make arrangements for salvage and repairs as quickly as can be; and, if possible, be present at all times during repairs and make sure that all work done and materials used are properly itemized.

5. In order to avoid later complications and misunderstandings, a complete report about an accident must be filed with the co-operative as soon as possible and not later than 30 days after its occurrence.

6. A vessel may remain tied up to oil scows, oil floats, or oil docks no longer than it is necessary for refueling, steam cleaning, or disinfecting.

7. When a vessel hits bottom, it must be hauled out for inspection as soon as feasible but not later than 25 days after the accident. It is a good preventive measure for the co-operative to pay the cost of docking the vessel irrespective of whether or not there is reason to believe damage occurred.

8. It is a good measure for the co-operative to pay towing charges for insured vessels so that repairs can be made as soon as possible. However, the towing charges which the co-operative agrees to pay must be specified and towing expenses must be carefully reviewed to avoid payment of unjustifiable claims.

9. When the engine, clutch or reduction gear are immersed in sea water while operating, they must be repaired immediately.

10. The decision of the insured vessel owner to hire a captain instead of operating the vessel himself must be reported to the co-operative.

The fourth and last area of managerial responsibility is operating costs, i.e., the expenses of the co-operative other than those representing adjustment of claims and payment of losses. Because of the nature of marine insurance, such costs are much higher than in other types of insurance. Operating costs representing as much as 40 percent of earned premiums – leaving only 60 cents for each dollar of earned premiums for the payment of claims – have been reported by private insurance companies.[6] Therefore, by being in a position to entrust important administrative and supervisory functions to members, the economies which an insurance co-operative may realize can be substantial, perhaps as large as the gains from the reduction of losses. High acquisition costs such as commissions to agents are practically absent and cases requiring costly litigation procedures are less likely to occur.

Additional savings may be realized if special efforts are made to keep administrative costs as low as possible. Limiting protection initially to a hull insurance policy only with a deductible clause to eliminate petty claims may help minimize the cost of surveying and processing of risks. The board of directors may work on a voluntary basis and many routine tasks may be done by the members of the co-operative on a rotating basis. Of course, substantial savings may be realized if governmental assistance is available for expert advice and an educational program designed to build the managerial competence of the co-operating members. No less valuable in this respect will be the establishment of a reinsurance institute with centralized statistical services.

In the present chapter, a comparative analysis has been made of the Norwegian and Japanese systems of insurance co-operatives; and we have taken this opportunity to make a few suggestions about organizing and operating insurance co-operatives. These suggestions may make the task of those who are interested in the insurance co-operative movement easier. It should not be forgotten, however, that the task is a formidable one; therefore, no amount of advice may be construed as a substitute to common sense, good judgment and a realistic appraisal of the institutional and human factors which make each situation unique.

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[6] C.A. Theodore and W.C. Danforth. *Hull insurance and protection and indemnity insurance of commercial fishing vessels*. Washington, D.C., United States Department of the Interior, 1957, p. 57.

4. A SAMPLE OF BY-LAWS FOR INSURANCE CO-OPERATIVES [1]

1. Interpretation

(*a*) In these rules, unless the context otherwise requires, words importing the singular shall include the plural and vice versa, and words importing the masculine gender shall include the feminine, and words importing persons shall include bodies corporate.

(*b*) In these rules, unless the context otherwise requires, the following words shall have the meanings inscribed thereafter respectively as follows:

" Incorporation Act " shall mean the Fishermen's Mutual Marine Insurance Company Act as may be amended from time to time.

" Mutual Fire Act " means the Mutual Fire Insurance Company's Act and Amending Acts and as may be amended from time to time.

2. Membership

(*a*) Any person, upon becoming a holder of a subsisting policy of the co-operative, shall thereupon become a member of the co-operative and shall continue to be a member of the co-operative for so long as he shall continue to be a holder of such policy and no longer.

(*b*) Each member in good standing shall have one vote and only one vote in all general meetings of the co-operative, irrespective of the number of policies of the co-operative held by him.

(*c*) The directors shall have full power and complete authority in the manner hereinafter prescribed to cancel any policy or policies of insurance held by any member who they deem to have conducted himself in a manner which is detrimental to the co-operative.

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[1] Based on the by-laws of the Pacific Coast Fishermen's Mutual Marine Insurance Company (Vancouver, British Columbia, Canada), 1965, with proper changes and omissions in order to generalize their content. Permission to publish this material as well as the appended sample of hull insurance policy and renewal certificate is gratefully acknowledged.

(*d*) Such cancellation shall be effected in the following manner. Where any member or shareholder presents to the directors, in writing, a signed statement of specific charges against another member, the directors shall, unless such charges are dismissed after investigation, send a copy thereof to the member in question and give him notice, not less than 21 days thereafter, to appear before a meeting of the directors to answer the specified charge(s). An affirmative vote by a majority of the directors present at such a meeting shall immediately be grounds for cancellation of all subsisting policies of insurance issued by the co-operative to such member.

(*e*) Upon such cancellation, the member shall be entitled to immediate return of the unearned portion of premiums on all insurance policies thus cancelled; and shall be entitled to all other benefits and claims in accordance with the provisions of these by-laws, as if he had voluntarily ceased to be a member of the co-operative.

(*f*) Except in the case of a corporate body prohibited by law from becoming a shareholder in the co-operative, every member shall apply for shares in the co-operative in such amount as the directors may from time to time prescribe; provided, however, that upon sufficient share capital being subscribed in the opinion of the directors, this provision may be waived by them.

(*g*) Legally appointed representatives of any deceased member or shareholder, or any member or shareholder who satisfies the directors that he has permanently retired from the fishing industry, may make application for payment of such member's equity in the co-operative and for his share of unpaid refunds, and the amount thereof shall be estimated at the end of the then current fiscal year of the co-operative and paid within 60 days after the end of the said fiscal year, provided always that the directors may, in case of death, make an advance upon such payment at any time after the application is received.

3. Guarantee stock

(*a*) The directors may, from time to time, authorize the issue of guarantee stock to the amount of... or such less amount, as they may decide; provided, however, that the total issue of guarantee stock shall not at any time exceed the sum of....

(*b*) Guarantee stock shall be divided into shares of... each.

(*c*) No dividend or interest shall be paid on guarantee stock.

(*d*) The directors may, on behalf of the co-operative, redeem and reissue its shares of guarantee stock at such times and in such manner as the directors shall deem expedient; provided always that:

(*i*) the directors may at any time require any shareholder to present his share certificate for cancellation, upon notice, offering to pay to him the amount paid to the co-operative for each share represented thereby. If such notice is not complied with by the shareholder within 60 days, his share shall thereupon be deemed to have been redeemed, and payment shall only be made to such shareholder upon his agreeing in writing to indemnify the co-operative for all expenses to which it may be put by reason of such certificate not being surrendered;

(*ii*) any person so required to surrender his share certificate shall not by reason thereof cease to be a member of the co-operative, despite any provision made pursuant to these by-laws requiring members to be shareholders;

(*iii*) any member may apply to the directors of the co-operative, at any time, requesting the co-operative to redeem any share held by him and shall include such application with the share certificate issued with respect to said share. Upon receipt of such application, the directors shall, as soon as they consider it expedient having regard to the best interests of the co-operative, redeem such share;

(*iv*) the co-operative may reissue any share redeemed.

(*e*) (*i*) No transfer of shares of guarantee stock shall be valid unless approved by the board of directors. Applications for transfer shall be made by the transferor to the board, which shall either approve or reject the same by resolution, such resolution to be recorded in the minutes by the secretary, with authority to make the necessary change(s), if any, in the register. In the event that the board of directors refuses to approve application for transfer, notification of such refusal shall be given to both the transferor and transferee.

(*ii*) The instrument of transfer of any shares of guarantee stock in the co-operative shall be executed by both the transferor and the transferee and the transferor shall be deemed to remain the holder of the shares until the name of the transferee is entered in the register of members of the co-operative as the holder thereof.

(*iii*) Shares in the guarantee stock of the co-operative shall be transferred in the following form, or in any usual or common form approved by the directors:

"I ..... of ..... in consideration of the sum of ..... paid to me by ..... of ..... (occupation) hereinafter called the transferee, do hereby transfer to the transferee ..... shares in the guarantee stock of ..... co-operative, to hold unto the transferee, his heirs, executors, administrators and assigns, subject to the several conditions on which I hold the same at the time of the execution hereof: and I, the transferee, hereby agree to take the said shares subject to the conditions aforesaid and to the by-laws of the co-operative.

WITNESS our hands the ..... day of ..... 19 ....

.....
Transferor

.....
Witness:

.....
Transferee

(*iv*) The instrument of transfer must be accompanied by the certificate of the shares to which it relates.

(*f*) (*i*) All shares in the guarantee stock of the co-operative shall be paid for in full in cash and no part of the funds of the co-operative shall be employed in loans upon security of the shares of the co-operative.

(*ii*) The directors may, from time to time, make calls upon the shareholders in respect of any moneys unpaid on their shares in the guarantee stock of the co-operative, as the exigencies of the co-operative may render necessary, and a call shall be deemed to have been made at the time when the resolution of the directors authorizing the call was passed; provided that a notice thereof is given forthwith to such shareholder or shareholders.

(*iii*) If default is made by a shareholder in payment of any call upon his shares for a period of two months after the call is due, the directors may, on giving one month's notice to the shareholder by registered letter mailed to his last known postal address, declare the shares of such defaulter, and all sums previously paid thereon, to be forfeited to the co-operative, and they may thereafter, unless within the said one month the amount due on the call is paid to the co-operative, either cancel the shares, or sell and reissue them at such price or prices as they may deem sufficient and for the benefit of the co-operative only; or on option of the directors, they may sue for and compel payment of the unpaid calls on the shares.

(*g*) Every person whose name is entered on the register of shareholders shall, without payment, be entitled to a certificate under the seal of the co-operative upon the shares being paid for in full; provided, however, that the directors may require payment of a fee not in excess of..... for registration of transfer of shares. No shares shall be issued jointly.

(*h*) The co-operative shall have a lien on the shares of any shareholders for any debt due to it by them.

(*i*) A shareholder of guarantee stock of the co-operative who is not otherwise a member of the co-operative shall, as a shareholder, have all the powers and privileges of a member of the co-operative, and shall be entitled to take part in and vote at all meetings of the co-operative in person or by proxy in favor of another member or shareholder of the co-operative in the same manner as if he were a member; provided always that no shareholder shall have more than one vote, irrespective of the number of shares held by him.

(*j*) The money subscribed for purchase of guarantee stock shall constitute the guarantee fund of the co-operative. The guarantee fund, whether

paid up or unpaid, shall belong to the co-operative and all debts and losses of the co-operative shall be met from the said fund. The shareholders of guarantee stock of the co-operatives shall, with respect to the guarantee fund, have such further and other rights and responsibilities, if any, as the co-operative in general meeting may declare by resolution or by-law passed before the fund is subscribed for; provided, however, that unless the whole of the fund is repaid or discharged, the said resolution or by-law shall not be rescinded or altered in any way without the consent of three fourths of the shareholders in writing.

4. Meetings

(*a*) The first general meeting of the co-operative shall be held not later than the last day of ..... at such time and place as the directors may determine.

(*b*) The fiscal year of the co-operative shall terminate on the..... of each year.

(*c*) An annual general meeting of the members and shareholders of the co-operative shall thereafter be held once every year in the month of .... or..... in each year, at such time and place as may be prescribed by the directors. At such meeting, in addition to the election of directors, there shall be submitted and considered a report of the transactions of the co-operative for the preceding year, together with a full statement of its affairs, exhibiting in detail its expenditures and its assets and liabilities and a report of the auditors of the co-operative thereon.

(*d*) In the event of a quorum not being present at the annual general meeting of the co-operative, the board of directors shall convene another general meeting, to be held within two months of the date of the annual general meeting, to transact the business of the annual general meeting.

(*e*) Notice of an annual or special general meeting of the co-operative shall be published in one or more daily or weekly newspapers published or circulated in the district embraced in the operations of the co-operative and by circular letter mailed by the secretary to the last known postal address of each member and each shareholder at least 14 days previous to the date of the meeting.

(*f*) The president of the board of directors, or any 15 members or shareholders of the co-operative, may at any time direct the secretary of the co-operative to call a general meeting of the co-operative, to be held at such time and place and for such purposes as those calling the meeting may determine, but priority shall always be given to a meeting convened by the board of directors.

(*g*) Twelve members or shareholders actually present shall form a quorum at all general meetings of the co-operative.

(*h*) In the event of a quorum not being present at any meetings of the co-operative called by the president or directors other than the annual general meeting, the meeting shall, after an interval of 30 minutes and upon the declaration of the chairman that a quorum is not present, stand adjourned for a period of one week, following which the business of the meeting shall proceed as if a quorum were present, at the same time and place as the adjourned meeting.

(*i*) The president, or failing him, the vice-president, shall preside as chairman at every general meeting of the co-operative, provided, however, if there is no such chairman present within 30 minutes after the time appointed for holding the meeting, or where there is no one willing to so act, the members present shall choose one of their number to be chairman.

(*j*) The chairman may, with the consent of any meeting at which a quorum is present, and shall if so directed by the meeting, adjourn the meeting from time to time and from place to place but no business shall be transacted at any adjourned meeting other than the business left unfinished at the meeting at which the adjournment took place.

(*k*) The order of business at a general meeting shall, according to circumstances, be as follows:

(*i*) meeting to be called to order;
(*ii*) notice convening meeting to be read;
(*iii*) minutes of preceding meeting to be read and disposed of;
(*iv*) business arising out of the minutes;
(*v*) reports of standing and special committees, if any;
(*vi*) reports of directors and auditors;
(*vii*) election of directors, and auditors, if required;

(*viii*) special business;

(*ix*) unfinished business;

(*x*) new business;

(*xi*) the well-being of the co-operative.

5. Voting

(*a*) Voting at any general meeting or at any meeting of the directors, unless otherwise herein provided, may be by show of hands, and in the case of voting by show of hands, the declaration of the chairman of the meeting shall be conclusive evidence of the result, unless three or more members, before or on the declaration of the result demand a poll, when a poll shall be forthwith taken.

(*b*) Voting for election of directors shall be by secret ballot and voting upon all applications for policies of insurance of the co-operative shall be by secret ballot only if requested by one or more directors.

(*c*) Every member present in person at a general meeting of the co-operative shall have one vote only, but he shall also be entitled to vote as proxy for no more than five other members, in the case of a poll, or vote by secret ballot.

(*d*) The instrument appointing a proxy shall be in writing under the hand of the appointer duly witnessed or, if the appointer is a body corporate, under its common seal, and shall be deposited at the registered office of the co-operative not less than 48 hours before the time for holding the meeting at which the member named in the instrument proposes to vote and, in default of compliance with the provisions hereof, the instrument of proxy shall not be valid.

(*e*) The instrument appointing the proxy may be in the following form, or in any other form approved by the directors:

"I ..... of .....
being a member or shareholder of .....
co-operative hereby appoint ..... of
..... also a member or shareholder of the
said co-operative as my proxy to vote for me and on my behalf at the gen-

eral meeting of the co-operative to be held on the ..... day of ..... 19.... and at any adjournment thereof.

SIGNED this ..... day of ..... 19....

....
Witness: Signature

(*f*) The chairman at any general or other meeting of the co-operative, or its directors, shall have but one vote and shall exercise the same only in the event of a tie.

(*g*) No shareholder in arrears with a call on his shares may vote at any general meeting.

6. Directors

(*a*) The board of directors of the co-operative shall consist of ... persons; provided, however, that the number of directors may be altered by ordinary resolution of a general meeting of the co-operative, but the number of directors shall not be reduced below.... in number.

(*b*) The directors of the co-operative shall be elected to represent the various districts of the region in which the membership reside and, for the purpose thereof, the region shall be divided into the following districts, and the number of directors to be elected for each district shall be the number set opposite each district in the list below. Each district shall, subject to the other provisions of these by-laws, comprise the localities mentioned in the said list:

No. 1 (name of) ..... district (number of) ..... directors
.....
..... (definition of the district and names of localities of which it is composed)

No. 2 (name of) ..... district (number of) ..... directors
.....
..... (definition of the district and names of localities of which it is composed)
etc.

For the purpose of election of directors, the residence of each member shall be deemed to be the locality in or nearest to which he appears to reside, according to the register of members. The decision of the directors as to which district the member resides in shall be final and conclusive.

(*c*) The directors elected prior to the coming into effect of this by-law shall continue in office for the respective terms for which they were elected and shall be deemed to represent the districts for which they were elected.

(*d*) Directors duly elected shall hold office for a period of three years or until their successors are elected. Any casual vacancy may be filled by the directors. If, in any election of directors, the places of retiring directors are not filled, then the existing directors shall continue in their offices as directors until such election takes place.

(*e*) Nominations for directors may be made before the annual general meeting, or the semiannual general meeting, by not less than three members of the co-operative who are residents in the district for which the director is to be elected. Such nomination shall be in writing and shall, save as provided in the present by-laws, be in the hands of the secretary of the co-operative not later than 24 hours before the holding of the general meeting and shall be signed by the person nominated indicating his consent to the nomination; provided that a letter posted at any place 48 hours before the general meeting shall be deemed to have been received on the closing date for such nominations in that year. Any person so nominating a director must himself be in good standing with the co-operative. Further nominations for directors may be made by members present in person or by proxy, at the annual general meeting before the election of directors, insofar as representation by proxy is in accordance with the by-laws.

(*f*) The directors, or any general meeting, shall have the power by two-thirds vote of those present, to alter the number of districts, the boundaries of districts and the number of directors to be elected by each district and the term of office of any director who has been elected; provided, however, that a general meeting may, by a two-thirds vote of those present, overrule any resolution of the directors passed in exercise of this power, and may make further alterations in the same manner.

The office of directors shall be vacated if the director:

(*i*) ceases to be a member or shareholder in the co-operative;

(*ii*) is concerned or participates in the profits of any contract with the co-operative unless he has first disclosed his interest and has refrained from voting with respect thereto;

(*iii*) is absent from three consecutive regular meetings of the directors without their consent;

(*iv*) becomes bankrupt, or a person of unsound mind;

provided always that no director shall be disqualified by reason of the fact that he holds one or more policies of insurance in the co-operative.

(*g*) The business of the co-operative shall be under the direction and supervision of the directors, who may pay from its funds the expenses of its incorporation, and may exercise all its powers, subject to the provisions of the Incorporation Act and of those sections of the Mutual Fire Act made applicable to the co-operative by the said Incorporation Act and these rules.

(*h*) The directors shall elect a president and vice-president from their number and shall appoint a secretary and a treasurer or, if desired, one person to act in the joint capacity of secretary and treasurer, whether from their own body or otherwise, as they think fit, and may prescribe their duties and fix their remuneration and from time to time dismiss them. The vice-president shall exercise the powers of the president in his absence.

(*i*) The directors may appoint a manager, prescribe his duties, determine his remuneration, and have the power to dismiss him.

(*j*) The directors may delegate any of their powers to committees, consisting of such member or members of their body as they think fit, and any committees so formed shall, in the exercise of powers so delegated, conform to any regulations that may be imposed on them by the directors.

(*k*) The directors shall have minutes recorded in books, stipulating:

(*i*) all appointments of officers made by them;

(*ii*) the names of the directors present at each of the director or committee meetings;

(*iii*) resolutions and proceedings at all meetings of the co-operative, the directors, or any committee;

and every director present at a meeting of the directors, or a committee, shall sign his name in a book kept for that purpose, but failure of any directors so present to sign shall not invalidate any proceedings or resolutions taken or passed at such meeting.

(*l*) The directors shall have proper registers of members, shareholders and directors kept at the registered office and shall, in all other respects, duly comply with the Incorporation Act and all other statutory requirements affecting the operation of the co-operative for the time being in force.

(*m*) The co-operative, in general meeting, shall determine from time to time the remuneration, if any, of the directors and officers of the co-operative.

(*n*) The directors may be paid a reasonable allowance for traveling expenses to attend meetings of the board or to attend to the business of the co-operative.

(*o*) All meetings of directors shall be held at the headquarters of the co-operative; the quorum necessary for the transaction of business by the directors may be fixed by the directors but, in any event, shall not be less than.....

(*p*) The directors may meet together for the dispatch of business, adjourn and otherwise regulate their meetings, as they think fit. Questions arising at any meeting shall be decided by majority vote. The chairman shall have only one vote, which he shall exercise only in case of a tie.

(*q*) The board of directors may meet from time to time, as the directors themselves shall decide, and the chairman may call meetings of the board at any time when, in his opinion, any business demands the consideration of the board, and the secretary shall, when requested by three directors, summon a meeting of the board at any time. Notice of all board meetings shall be given in accordance with such rules as the directors themselves adopt from time to time.

(*r*) A resolution signed by all the directors shall have the same force and effect as if passed at a duly constituted directors' meeting.

(*s*) All applications for insurance policies of the co-operative and for shares in the co-operative shall be passed on by the directors or by any committee of directors to which such duty is delegated by the board of directors.

(*t*) The directors shall have all the powers given to them under the Incorporation Act and under the provisions of the Mutual Fire Act made applicable to the co-operative by the said Incorporation Act, except as modified or prohibited by these rules, and they shall have all powers given to them in these rules except insofar as any of these rules contravene the provisions of the said acts.

(*u*) The directors shall have the power to borrow money for the purposes of the co-operative in accordance with the provisions of the Mutual Fire Act; provided, however, that the board of directors shall not lend money to, or borrow money from, any director.

(*v*) The directors may, from time to time, change the location of the registered office of the co-operative as they may deem expedient, upon proper notice thereof being filed with the registrar of.....

(*w*) The directors may from time to time, if they deem expedient, open and close branches of the co-operative for the purpose of carrying on the business of the co-operative in any community within the region.

(*x*) The directors may expend a reasonable sum each year for the following purposes, that is:

(*i*) to work for the elimination of careless and reckless operation of fishing vessels;

(*ii*) to encourage the use of safety devices and measures;

(*iii*) to encourage the co-operative movement generally.

(*y*) The directors shall have the power from time to time to appoint bankers and a solicitor or firm of solicitors for the co-operative and to perform all banking and other operations of the co-operative.

7. Finance

(*a*) The treasurer, manager, secretary or other persons in charge of funds of the co-operative shall each give security to the satisfaction of the board of directors in an amount to be fixed by the directors but, in any event, not to be less than..... for so long as they shall have charge of such funds.

(*b*) The directors shall cause true accounts to be kept of all sums of money received and expended by the co-operative and of the manner in respect of which such receipts and expenditures take place and of the assets and liabilities of the co-operative.

(*c*) Books of account shall be kept at the registered office of the co-operative but may for temporary purposes be kept in such other place or places as the directors think fit, and shall at all reasonable times be open to the inspection of the directors and members and shareholders.

(*d*) One or more auditors may be appointed by the co-operative at its first general meeting and at every annual general meeting thereafter. In the event of the general meeting failing to so appoint an auditor or auditors, the board of directors shall do so; any casual vacancy in the office of auditor may be filled by the directors. No director or officer of the co-operative may be appointed or act as auditor.

(*e*) The co-operative's receipts, after payment of losses and operating expenses, including expenditure referred to in Rule 6 (*x*) and adequate allowance for depreciation shall be applied as follows and subject to the provisions of by-law 7 (*e*) (*iii*) as it now is or as it may be amended from time to time:

(*i*) To set aside such sums as a reserve fund, as the directors may deem expedient, it not being less than the sum or sums required to be set aside by the Incorporation Act.

(*ii*) To refund to the members of the co-operative the whole or any portion of its remaining receipts; provided, always, that a record be kept each year of the premiums earned by the co-operative from premiums paid by each member to the co-operative during each fiscal year.

(*iii*) To refund any portions or the whole of the remaining receipts (after setting aside reserves) to the members in any year in proportion to the net premium earned by the co-operative out of the premiums paid by each member for that year, such net earned premiums to be determined after such allowance as the directors deem fit for the cost of reinsurance to the co-operative for each policy held by each member; the amounts so refunded shall be credited to the account of the member but the directors

may determine each year that a percentage of the refund so credited not exceeding... percent in each year shall be held in reserve for the purposes and upon the conditions hereinafter stated, and the member shall be entitled to and may obtain payment of the balance thereof upon demand in writing for payment to him and any such amount so demanded shall be payable within a period not exceeding 30 days. In the event that the directors determine that a portion of the refund in any year shall be held in reserve pursuant to this rule, the portion so retained shall be retained for a period of five years thereafter and be subject to assessment for losses by the co-operative in any year or years during said period, whether or not the member is a policyholder in such year or years, which assessment the directors may apportion in such manner as they deem equitable, and in the event such assessment is made, the amount of refund held in reserve for a member shall be subject to deduction of the amount of such assessment and the amount so deducted shall be the property of the co-operative for the purpose of meeting such losses; provided, always, that an assessment shall not be made against any member for such losses in excess of the total amount of refund held in his name in reserve. Assessments shall be deducted from the first refund held in reserve in a member's name until it is exhausted and so as to each refund held in reserve in the order in which they were credited to his account. The remaining portion of any refund held in reserve at the end of five years from the date on which it was credited after deductions authorized hereunder shall be credited to the account of the member and be payable in the same manner as the balance of the original refund. The co-operative shall give notice to each policyholder credited with refunds pursuant to this clause of the amount credited to refund in each year to be held in reserve and the amount of refund to be credited to his account in excess thereof and of the fact that he is entitled to payment of the excess amount upon demand as herein provided. The directors shall not exercise the power of assessment hereunder until the general reserves of the co-operative are exhausted. Notwithstanding any other provision of this by-law, the directors may pay out the whole or any portion of the refund held in his name in reserve to any member retir-

ing from membership by reason of age or ill-health before the same is due.

(*iv*) In the event of the co-operative being liquidated or terminated and being possessed at the time thereof of any reserve funds, after payment to all creditors and provision for reinsurance of all unexpired policies of insurance underwritten by the co-operative and the repayment to the holders of the guarantee stock then outstanding of the moneys paid up thereon, the remaining reserves, together with all other surplus assets of the cooperative, shall be distributed among the then members of the co-operative in proportion to the earned portion of premiums paid by them respectively, after allowance for the cost of reinsurance in the preceding period of five years in relation to the total earned premiums after allowance for total cost of reinsurance received by the co-operative in the said period.

8. Rates

(*a*) The table of rates to be charged for policies of insurance issued by the co-operative shall be fixed by the board of directors.

(*b*) The directors may, by resolution passed by three fourths of the directors present at a meeting of directors of which notice of the intention so to do has been given, vary the table of rates to be charged for all policies or any class of policy issued by the co-operative.

(*c*) The directors shall publish and make available free of charge to every member or shareholder, upon request, the table of rates fixed in accordance herewith and such variations as may be made from time to time and the dates when such variations shall come into effect.

(*d*) Any variation of the rates in accordance with the provisions hereof shall take effect at the time specified in the resolution of the directors. Such variations shall not apply to subsisting policies of the co-operative.

9. Assessments

Until such time as the co-operative makes provision in these by-laws for the issuance of premium notes, no assessment of losses shall be made except as otherwise provided herein.

10. Risks

(*a*) Policies of insurance to be issued by the co-operative may be divided into any number of classes by resolution of the board of directors, and the class of insurance shall be identified by a separate letter of the alphabet and may thereafter be referred to by that letter.

(*b*) The board of directors shall fix the risks to be covered by each class of insurance to be issued by the co-operative upon the creation of such classifications, and such definitions as may be established by listing the risks to be covered or by listing the risks to be excluded from a floating or general coverage.

(*c*) The directors may, by resolution passed by three fourths of the directors present at a meeting of the directors of which notice of the intention so to do has been given, vary the risks to be covered by any class of policy of the co-operative.

(*d*) The directors shall publish and make available free of charge to every member or shareholder, upon request, a schedule of the classes of policies to be issued by the co-operative and the risks covered thereby, and such variations as may be made from time to time and the dates when such variations will come into effect.

(*e*) Any variations of the risks to be covered by any class of policy issued by the co-operative, in accordance with the provisions hereof, shall take effect at the time specified in the resolution of the directors. Such variations shall not apply to subsisting policies of the co-operative.

11. Premiums

(*a*) The premiums payable by any policyholder shall be determined by the rates of insurance applicable to the policy to which it relates, determined in accordance with these rules and such resolutions of the directors as are permitted hereby affecting the same; provided that the directors may designate a certain portion of all premiums or a fixed amount thereof to be deemed to be the cost of valuation and of other costs relating to the issuance of the policy, which said portion of the premiums shall be known as the cost of the policy.

(*b*) In determining the earned or unearned portion of any premiums, the cost of the policy shall be excluded therefrom.

(*c*) That portion of the premium shall be deemed to be earned which is in the same proportion to the whole premium after deduction of the cost of the policy as the period of actual coverage of risk bears to the term of the policy at the date of determination of the earned portion, and the balance of the premium, exclusive of the cost of the policy, shall be the unearned portion of the premium.

(*d*) All premiums shall become due and payable forthwith upon acceptance of the application for insurance or for renewal of an existing policy by the board of directors, or its authorized committee, except as otherwise herein allowed for; provided always, that the board of directors or the said committee may authorize the manager of the co-operative from time to time to arrange for payment of any premium in installments; and provided further, that in the case of renewals no premium shall become due before the expiration of the subsisting terms.

(*e*) In the event of any premiums, or in the case where arrangements have been made to pay premiums by installments, any installment overdue for more than 60 days, and in every such event, the policy to which such sum relates shall, at the option of the co-operative, thereafter be null and void.

(*f*) Such part of the earned portion of the premium as the directors may determine shall be refundable to the policyholder for the periods, in accordance with the terms of the policy, during which the property is laid up and free from risks covered by such policy, upon terms provided by the directors.

12. Applications

(*a*) Applications for new policies of insurance shall be made in writing to the directors upon a form prescribed by them.

(*b*) Upon receipt of an application, the directors or the manager, or some other person appointed by the directors, shall cause the property applied to be insured to be inspected by a valuator or valuators.

(*c*) The valuator or valuators shall check the inventory of the property applied to be insured as set forth in the application and report thereon, in writing, to the manager or such other person authorized by the directors.

(*d*) If the valuation placed by the valuator or valuators on any articles sought to be insured is less than 90 percent of the value placed thereon by the applicant in his application, the applicant shall be notified and given the opportunity to amend or withdraw his application; otherwise, his application shall be deemed to have been amended in accordance with the said valuation by the valuator or valuators.

(*e*) The application and report of the valuator or valuators shall then be submitted to the board of directors or its authorized committee, who shall accept or reject the same.

(*f*) Before accepting or rejecting an application, the board or the said committee may require such further and other reports as to the character of the applicant or with respect to the property, as it may deem necessary to ascertain the extent of the risk.

(*g*) Upon accepting the application, the board or the said committee shall fix the terms of payment of the premiums.

(*h*) Notification of acceptance shall be given to the applicant by post or wire as promptly as possible after acceptance.

(*i*) A policy of insurance, in a form to be determined by the board of directors, but in any event to be subject to these rules, shall be issued to the applicant within a reasonable period of time after the acceptance of his application.

(*j*) The risk shall be covered from and after 12:01 noon on the day immediately following the delivery of a signed application in a form prescribed by the directors to a duly authorized representative of the co-operative and the risk therein applied to be insured shall be covered pending issue of the policy, or until the applicant is notified of nonacceptance by wire or letter addressed to the address shown on the application, or orally, by a duly authorized representative of the co-operative. All applications shall be promptly forwarded to the directors or their duly authorized committee, who shall determine whether or not to accept or reject the same.

(*k*) Applications for renewal of existing policies may be made in such manner as the directors may from time to time establish. The directors shall, upon determining the rule with respect thereto or upon making any

variation with respect thereto, forthwith notify all subsisting policyholders and any such variation shall not be brought into effect within 14 days from the making thereof.

(*l*) The directors, if they consider special circumstances exist which would prejudice the protection of any member, may renew any policy of insurance without application being made therefor, upon such terms as they shall deem reasonable, but such policy shall not remain in effect for more than 60 days, unless proper application for renewal is made and the terms as to payment of the premium thereon are accepted and fulfilled within the said period of 60 days.

(*m*) The directors may, from time to time, authorize a committee of the directors, if special circumstances exist, to accept an application for a new policy or for a renewal without compliance with the provisions of this rule, but such application shall not be accepted unless the said committee of directors has first obtained a favorable report on the character of the applicant; and any coverage of risk attaching thereby shall immediately terminate upon resolution of the board of directors or its authorized committee upon reviewing the acceptance of such application. Before so binding the co-operative, the said committee of directors shall require the applicant to provide an adequate undertaking that, in the event of a claim or claims arising before his application is so reviewed by the board of directors or its authorized committee, he shall undertake the onus of strict proof of all facts material to such claim or claims and, until so proved, he shall not be entitled to payment of any such claim or claims.

13. Policies

(*a*) The directors shall determine, from time to time, the form and wording of policies of insurance to be issued by the co-operative, but all policies issued shall be expressed to be subject to these rules in every respect.

(*b*) No policy of insurance of the co-operative shall be transferable to any person other than the person to whom it is issued, except in the event of the death of such person, or in the event of such person being found to be a lunatic within the meaning of the law and amendments and, in either event, the following conditions appropriate to the circumstances shall apply, that is to say: upon the application of a widow or children (in the case of death) or the committee (in case of lunacy), upon being satisfied that the property

insured will be competently and carefully used, the directors may authorize a transfer of the policy to the widow or the children or to the committee of such deceased policyholder upon such terms as they deem reasonable.

(*c*) The directors may accept an assignment of any moneys which may become payable on any claims arising under a policy of the co-operative in favor of any person who has an insurable interest in the property insured by such a policy. Such assignment must be in a form approved by the directors and shall be given effect only so long as such insurable interest of the assignee shall continue and in an amount not in excess of such insurable interest at the date when such moneys become due and payable.

14. Valuators

(*a*) The directors may, from time to time, appoint such person or persons as they deem advisable to act as valuators and may determine the amount of remuneration, if any, which shall be paid to such valuators for their services and expenses.

(*b*) The valuators shall carry out the duties assigned to them by the directors but, generally, shall be required to inspect and value the property of an applicant for a policy of the co-operative and to evaluate the amount of damage suffered by any claimant as required from time to time by the directors.

15. Claims

(*a*) In the event of accidents whereby loss or damage may result in a claim under this policy, the policyholder, his agents and servants shall take all reasonable measures to protect and save the property insured from further damage or loss.

(*b*) In the event of such an accident, notice shall be given immediately to the board of directors or such person or persons authorized by them to receive such notice, and wherever practicable such notice must be in writing.

(*c*) Such notice shall be given prior to survey, so that the co-operative may appoint its own surveyor, if the directors so desire. The co-operative shall be entitled to decide the port to which a damaged vessel shall proceed for docking and repairs (the actual additional expense arising from com-

pliance with the co-operative's requirements being refunded to the member), and the co-operative shall also have a right of veto in connection with the place of repair or repairing firm proposed. In all such respects, the co-operative shall act through its board of directors or such person or persons authorized by the said board.

(*d*) The directors may require any policyholder to obtain signed statements from competent persons present at the place where the damage or loss occurred or who have otherwise observed the cause of such damage or loss, the damaged property or any other material facts, to be filed with the claim of the policyholder, and unless such request is unreasonable, failure to file such statements shall relieve the co-operative from all liability to the policyholder with respect to the claim which they are required to substantiate. In the event of a constructive total loss, the underwriter shall determine whether the vessel has any damage or breakup value. If, in the opinion of the underwriter, the damaged vessel or wreck has such a value, then the underwriter shall first offer it for sale to the insured for the insured proportion of the value placed upon it by the underwriter. If the insured, within 30 days from the date of notice of such offer, refuses or neglects to accept the same, the underwriter may sell the damaged vessel or wreck at public auction or by private sale without notice to the insured and shall pay to the insured the uninsured proportion of the net proceeds of said sale.

(*e*) Within 30 days of the occurrence of an event giving rise to any claim under any policy issued by the co-operative, the claimant shall file an application for claim in the form and manner prescribed by the directors; provided, however, that the directors may, in their discretion, extend the time of filing thereof.

(*f*) Upon such claim being filed, and upon the directors or a committee authorized by the directors receiving a report from the valuator or valuators, or such other person or persons as may be authorized and appointed by the directors or said committee to evaluate the extent and value of the damage to, or loss of, the property insured, and such other reports as to the cause, nature and extent of the damage or loss as the directors or said committee deem necessary to determine the liability of the co-operative, if the directors or said committee, on behalf of the co-operative, are not willing to pay the claim in full in the amount claimed by the claimant, the directors or said committee shall notify the claimant as to the terms on which the co-operative is prepared to settle the said claim.

(*g*) If the claimant is not willing to accept the said terms of settlement in full satisfaction of his claim, he must, within 30 days or within such longer period as the directors may in their sole discretion allow, from the mailing of such notice, communicate to the directors, in writing, his refusal to accept the same, and if he fails to do so within such time he shall be bound to accept the same in full satisfaction of his claim.

(*h*) Within 30 days after communicating his refusal to accept the terms of settlement set forth in the directors' notice, the claimant may elect to apply for arbitration of his claim in one of the manners hereinafter provided and such election shall be final; that is to say:

(*i*) by giving notice to the co-operative within such period that he desires an informal arbitration of his claim; or

(*ii*) by giving such notice or taking such proceedings within said 30 days as may be required to be given or taken under the provisions of the Arbitration Act, hereinafter called "formal arbitration".

(*i*) If the claimant fails to give such notice or take such proceedings for either informal or formal arbitration, he shall be deemed to have accepted the terms of settlement set forth in the directors' notice, and shall be estopped from claiming any sum in excess thereof.

(*j*) The decision of the arbitrator, if there be only one, or of a majority of the arbitrators, shall be final and conclusive and shall be binding upon the parties to the arbitration.

(*k*) The costs of any arbitration may be awarded against either party or divided between the parties by the arbitrator or "arbitrators".

(*l*) If the claimant elects to give notice of an informal arbitration, the terms, procedure and rules of such arbitration shall be determined entirely by agreement between the claimant and such person as shall be authorized by the directors to represent the co-operative and, failing such agreement, they shall be determined by the arbitrator or arbitrators selected by the parties; provided that, if the parties cannot agree upon a single arbitrator, there shall be three arbitrators appointed, one by the claimant, one by the co-operative, and a third selected by the two arbitrators thus appointed. If the claimant elects to give notice or take proceedings pursuant to the said Arbitration Act, the provisions of that act shall apply and the references shall be to two arbitrators.

(*m*) No claimant or other persons shall have any other remedy against the co-operative to determine the liability of the co-operative on any claim arising out of a policy of the co-operative other than in the manner hereinbefore provided.

(*n*) The directors may, in their discretion, at any time provide for a franchise provision or deductible clause in such amount as they see fit to be included in all policies of insurance of the co-operative written by the co-operative after the passing of said resolution and, if such provision would be beneficial to the holders of any existing policy, the directors may also provide that such provision shall apply to subsisting policies of the co-operative.

(*o*) After the acceptance of terms of settlement pursuant to notice as hereinbefore provided, or an award by arbitration as hereinbefore provided, the amount so fixed as the liability of the co-operative shall become due and payable by the co-operative within 60 days from the date of being so fixed, but shall not be paid by the co-operative until the policyholder has executed and delivered a full release of liability to the co-operative with respect to the claim to which such payment relates, and such payment shall be deemed to be payment of such claim in full satisfaction thereof.

(*p*) The principles of subrogation, contribution and the right to salvage shall apply to all policies of insurance of the co-operative and shall arise forthwith upon payment in full of any claim.

16. Reinsurance

(*a*) The directors of the co-operative may make such provision as they see fit on behalf of the co-operative to reinsure any risk undertaken by the co-operative, or to join with any other underwriter or underwriters in such manner and upon such terms as they deem expedient for sharing any risk which the co-operative agrees to undertake.

(*b*) The directors may, notwithstanding any other provision of these by-laws, alter the terms of any policy of insurance of the co-operative before issuance thereof, or with the written consent of the insurer after the issuance thereof, to conform with the requirements of the reinsurer or coinsurer of any risk to be or already underwritten by the co-operative, in order to obtain the most reasonable rate or premium upon such reinsurance or coinsurance.

(*c*) The directors may enter into a contract of reinsurance with respect to any risk underwritten or to be underwritten by the co-operative, covering part only of the liability undertaken by the co-operative with respect to such risk.

17. Disputes

(*a*) Any dispute arising out of the affairs of the co-operative between a member or shareholder thereof, or any person aggrieved, who at any time has been a member or shareholder of the co-operative, or any person claiming through such member or person aggrieved and the co-operative or any director thereof with respect to the interpretation and/or application of these by-laws or any claim against the co-operative or a director thereof, shall be determined by arbitration.

(*b*) The provision for arbitration provided in Section 15 of these by-laws shall apply with respect thereto insofar as applicable and, where not applicable, the provisions of the Arbitration Act shall apply and the reference shall be to two arbitrators.

(*c*) The decision of a majority of the arbitrators shall be final and conclusive and shall be binding upon the parties to the arbitration.

(*d*) Any person seeking such arbitration who is not at the time of seeking the same a member or shareholder of the co-operative, may be required by the arbitrators, upon the application of any other party, to put up security for the costs of such arbitration in a sum not in excess of... and until such security is provided, arbitration proceedings shall be stayed.

18. Notices

(*a*) Any notice required to be given by the Incorporation Act or these by-laws, or given in pursuance hereof, shall be in writing and shall be deemed to have been given by the co-operative to any member or shareholder, either personally or by post to his address, as shown on the co-operative's register of members and shareholders, or to his last known address; provided always, that where it is more expedient to give such notice by wire, notice so given shall be deemed to have been given when a wire is sent to the last known address of such member or shareholder or his agent or servant.

(*b*) Any notice required or permitted to be given by the Incorporation Act or these by-laws to the co-operative or the directors, shall be deemed to have been given if in writing or by wire addressed to the co-operative at its head office.

(*c*) Any purely accidental omission to send, or error in sending, a notice of any meeting either of the co-operative or of the directors affecting not more than 2 percent of the persons to whom notice should have been sent shall not invalidate the meeting held in pursuance of such notice nor the proceedings and resolutions taken and passed thereat.

19. The seal

(*a*) The co-operative shall have a seal, to be obtained by the directors, on which the name of the co-operative shall be clearly in evidence.

(*b*) The president or vice-president, and the secretary, treasurer or any other director, shall sign all certificates of stock and all policies of the co-operative and all deeds, documents and other instruments requiring execution by the co-operative, unless otherwise provided by the board of directors by resolution.

(*c*) The seal of the co-operative shall not be used without the sanction of the president or vice-president, and secretary, treasurer or other directors, unless otherwise provided by resolution of the directors.

20. Alteration of by-laws

These by-laws may be altered or added to by ordinary resolution at the first general meeting of the co-operative, but thereafter may only be altered or added to by special resolution.

Appendix 1. – Sample of a hull insurance policy

Insurance co-operative

CITY, STATE

Assured . . . . . .
Vessel . . . . . .
Expires . . . . . .
Premium . . . . . .

ON ACCOUNT OF

Loss, if any, payable to . . . . . .

Doth make insurance and cause to be insured, lost or not lost.

From 12 o'clock noon – S.T.

To 12 o'clock noon – S.T.

upon the hull and engine and equipment and accessories thereto respectively pertaining (specifically excluding all fishing gear) of and in the motor vessel . . . . . .

Agreed value

. . . . . in and for the sum of . . . . . .

Sum insured

. . . . . which sum represents . . . . of . . . . . .

Rate percent

. . . . . .the value of the said hull and engine including their respective equipment and accessories, agreed upon for the purpose of this policy. BEING IN CONSIDERATION OF the representations and warranties of the assured and the premium of

Premium

. . . . . .

Touching the adventures and perils which we the underwriters are contented to bear and take upon us, they are of the seas, men-of-war, fire, enemies,

pirates, rovers, thieves, jettisons, letters of mart and countermart, surprisals, takings at sea, arrests, restraints and detainments of all kings, princes and people, of what nation, condition or quality soever, barratry of the masters and mariners, and of all other perils, losses and misfortunes that have or shall come to the hurt, detriment or damage of the said vessel, etc., or any part thereof; and in case of any loss or misfortune it shall be lawful to the insured, their factors, servants and assigns, to sue, labor and travel for, in and about the defense, safeguard and recovery of the said vessel, etc., or any part thereof, without prejudice to this insurance; to the charges whereof, we the underwriters, will contribute according to the rate and quantity of the sum herein insured. And it is specially declared and agreed that no acts of the insurer or insured in recovering, saving or preserving the property insured shall be considered as a waiver or acceptance of abandonment.

Subject to all terms, conditions, and warranties printed or written hereupon or hereunder or hereto in any manner affixed and to the by-laws of the co-operative, as amended from time to time, all of which said terms, conditions, warranties and by-laws are agreed and declared to be as fully a part of this policy of insurance and the contract represented hereby as if herein repeated; and subject to all warranties implied in law not herein or in said terms, conditions, warranties and by-laws specifically excluded; and in the event of any conflict between this policy or said terms, conditions and warranties, or any of them, and the said by-laws, the said by-laws shall prevail.

This insurance is understood and agreed to be subject to state law and usage as to liability for and settlement of any and all claims.

SUBJECT TO THE PRINTED CLAUSES AND WARRANTIES AS ATTACHED [1]

IN WITNESS WHEREOF the undersigned, on behalf of the said underwriters, have hereunto set their hands in city, state, this . . . . . day of . . . . . .

. . . . . INSURANCE CO-OPERATIVE

[1] Clauses and warranties may vary considerably from one country to another in accordance with national legislation and insurance practices. It is, therefore, not considered appropriate to include a sample in this monograph. Furthermore, sample clauses may be obtained easily from established insurance enterprises.

Appendix 2. – Sample of a renewal certificate

Insurance co-operative

HEAD OFFICE

City, State

ON ACCOUNT OF

In consideration of the payment of the premium of . . . . . Hull Insurance Policy No . . . . . is hereby renewed, and the term of said policy extended for a further period of one year, from . . . . . to . . . . . 12 o'clock noon, Motor vessel . . . . . Agreed value . . . . . in and for the sum of . . . . . Sum insured

which sum represents . . . of . . . . . Rate percent . . . . . the value of the said hull and engine

All terms, conditions and warranties of the said policy continue and remain for the period covered by this certificate, except as follows:

Seal

IN WITNESS WHEREOF the undersigned, on behalf of the said underwriters, have hereunto set their hands in city, state, this . . . . . day of . . . .

. . . . . INSURANCE CO-OPERATIVE

Reinsurance . . . . . @ . . . . . % . . . . .
Engine . . . . . .

S. p. A. Arti Grafiche Panetto & Petrelli – Spoleto-Roma

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